

# Notebook Computer

## User's Manual

U402001

## Preface

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## Notices

### Federal Communications Commission Radio Frequency Interference Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, it can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

#### Notice:

1. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables and a non-shielded AC power cord must be used in order to comply with emission limits.
3. This equipment is to be used with power supply: ILAN F1700C, Delta ADP-50GB, ADP-50MB, AMBIT APA-50XX or Delta ADP-50PB Internal power supply.

### Canadian DOC Notice For Class B Computing Devices

This Class B digital apparatus meets all requirements of the Canadian Interference - Causing Equipment Regulations.



Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## Safety Precautions

This section is designed to assist you in identifying potentially unsafe conditions while working with this product. Required safety features have been installed in the computer to protect you from injury. However, you should use good judgment to identify potential safety hazards:

- Read all of these instructions before using your Notebook and save them for later use.
- Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. To clean, wipe with a damp cloth.
- Do not use this product near water.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- Slots and openings in the cabinet are for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.  
This product should never be placed near or over a radiator or heater.
- Never push objects of any kind into this product through cabinet openings, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on the product.
- This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- If you use an extension cord with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

- Adjust only those controls that are covered by the operating instructions, since improper adjustment of other controls may result in damage and may require extensive work by a qualified technician to restore the product to normal operation.
- Do not attempt to service this product yourself, as opening or removing the cabinet may expose you to dangerous voltage. Refer all servicing to service personnel.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - If the power cord or plug is damaged or frayed
  - If the product has been exposed to rain or water
  - If the product does not operate normally when the operating instructions are followed
  - If the product has been dropped or the cabinet has been damaged
  - If the product exhibits a distinct change in performance, indicating a need for service
- Unless the manufacturer indicates that a device can be **hot-plugged**, you should turn off the computer before connecting peripheral devices.
- Replace the battery pack only with the same type as the original. Use of another battery pack may present a risk of fire or explosion.
- Do not use or leave the AC Adapter near a fire, stove, or other hot environment.
- Do not immerse the AC Adapter in water or expose it to moisture. Do not cover the AC adapter with anything (such as a book, box, paper, etc.).

**Warning :** The battery pack may explode if handled incorrectly. Do not disassemble the battery or dispose of it in fire. Keep from children and dispose of the used battery promptly.

## Wichtige Sicherheitshinweise

- Lesen Sie alle Hinweise vollständig durch.
- Bewahren Sie alle Begleitmaterialien sorgsam auf.
- Folgen Sie allen am Gerät angebrachten Warnungen und Hinweisen!
- Vor dem Reinigen des Netzgeräts Netzstecker ziehen! Keine Flüssigreiniger oder Sprühreiniger verwenden! Zum Reinigen ein angefeuchtetes Tuch benutzen!
- Das Netzgerät nicht in feuchten Räumen verwenden.
- Auf der Oberseite des Gehäuses des Netzgeräts befinden sich Belüftungsöffnungen, die im Sinne der Betriebssicherheit nicht abgedeckt werden sollten.
- Das Netzgerät ist mit einem Schukostecker ausgestattet, welcher einen sicheren Schutzleiteranschluss für das Gerät bietet. Dies ist eine Sicherheitsmassnahme. Falls der Stecker nicht an die Steckdose passt, sollte ein Elektriker die Steckdose gegen eine neue austauschen.
- Das Gerät wird durch Abziehen des Netzstecker vom Stromnetz getrennt. Die Steckdose sollte sich daher in der Nähe des Geräts befinden und leicht zugänglich sein.
- Der Rechner sollte nur mit dem vom Hersteller angegebenen Netzgerät betrieben werden.
- Ersetzen Sie den Akku nur durch einen baugleichen Typs, sonst besteht Feuer- und Explosionsgefahr! Der Akku sollte nur vom Fachpersonal ausgewechselt werden.
- Dieses Gerät enthält einen Nickel-Kadmium-Akku. Im Interesse des Umweltschutzes bitte nicht mit dem Hausmüll entsorgen. Eine Entsorgung kann je nach nationalen Vorschriften über eine Kundendienststelle oder entsprechende Sammelstellen erfolgen.

**Warnung** Der Akku kann bei falscher Handhabung explodieren! Nicht zerlegen oder in offenes Feuer werfen! Von Kindern fernhalten und nach Gebrauch sofort entsorgen!

## Abbreviations

<u>Abbreviation</u>	<u>Meaning</u>
ACPI	Advanced Configuration and Power Interface
AMD	Advanced Micro Devices
APM	Advanced Power Management
ASKIR	Amplitude shift keyed infrared port
ATA	AT Attachment (Advanced Technology Attachment)
ATAPI	AT Attachment Packet Interface
BIOS	Basic Input/Output System
CMOS	Complementary Metal Oxide Semiconductor
CPU	Central Processing Unit
DIMM	Dual In-line Memory Module
DMA	Direct Memory Access
DRAM	Dynamic Random Access Memory
D-STN	Dual Scan STN (Super Twisted Nematic)
D-STN XGA	Dual Scan STN (Super Twisted Nematic) Extended Graphics Array
ECP	Enhanced Capabilities Port
EDO DRAM	Extended Data Output DRAM
EIDE	Enhanced IDE (Integrated Drive Electronics)
EPP	Enhanced Parallel Port
FDC	Floppy disk controller
GB	Gigabyte (1GB = 1,073,741,824 bytes or 1,024MB)
HP SIR	Hewlett-Packard Serial InfraRed
I/O	Input/output
IDE	Integrated Drive Electronics (internal hard disk drive interface)
IEEE	Institute of Electrical and Electronics Engineers
IrDA	Infrared Data Association
IRQ	Interrupt ReQuest
ISA	Industry Standard Architecture

JEIDA	Japanese Electronic Industry Development Association. A Japanese trade and standards organization. The PC card specifications JEIDA 4.1 and PCMCIA 2.0 are the same.
KB	Kilobyte (1 KB = 1,024 bytes)
LAN	Local Area Network
LCD	Liquid Crystal Display
LCM	Liquid Crystal Module
LED	Light Emitting Diode
Li-Ion	Lithium Ion (battery)
MB	Megabyte (1 MB = 1,048,576 bytes or 1,024KB)
MESI	Modified Exclusive Shared and Invalid (protocol)
MHz	MegaHertz
MIDI	Musical Instrument Digital Interface
MMU	Memory Management Unit
MMX	MultiMedia EXtensions
MPEG	Motion Picture Experts Group
MS-DOS	Microsoft Disk Operating System
NI-MH	Nickel Metal Hydride
NTSC	(National TV Standards Committee) The US color TV standard administered by the FCC. It currently broadcasts at 525 lines of resolution that are transmitted as 30 interlaced frames per second (60 half frames per second, or 60 "fields" per second in TV jargon).
PAL	(Phase Alternating Line) A European color TV standard that broadcasts an analog signal at 625 lines of resolution 25 interlaced frames per second (50 half frames per second).
PCI	Peripheral Component Interconnect
PCMCIA	Personal Computer Memory Card International Association
PGA	Pin Grid Array
PIO	Programmed Input/Output
POST	Power On Self-Test
RAM	Random Access Memory
ROM	Read Only Memory
RTC	Real Time Clock

SIR	Serial Infrared
SMI	System Management Interrupt
SPP	Standard Parallel Port
SRAM	Static Random Access Memory
SVGA	Super Video Graphics Array
S-Video	S-Video hookups use a special 5-pin connector rather than the common RCA phono plug.
TFT	Thin Film Transistor
TFT XGA	Thin Film Transistor Extended Graphics Array
USB	Universal Serial Bus
VGA	Video Graphics Array
XGA	Extended Graphics Array
ZV Port	Zoomed Video Port

## Personal Inventory

This Notebook computer system is designed for years of productive and pleasurable computing. Use this section to keep notes about details of your purchase. Update this section when you add new options.

Date of Purchase:

Dealer's Name:

Phone:

Address:

e-mail Address:

www site:

Type of LCD screen display \*Noted on the outside box

1 12.1" Color TFT XGA LCD

1 14.1" Color TFT XGA LCD

1 Others:

Serial Number:

CPU Type:

Hard Disk Capacity:

Memory Capacity:

Optional Equipment:

# Chapter 1

## Introduction

### Welcome to the Notebook PC

Congratulations on your purchase of the Notebook PC. Your Notebook features the latest advances in portable computing technology. The Notebook's modular design provides maximum expendability without compromising portability. The high-performance Tillamook or Pentium II CPU and enhanced IDE hard drive provide you with extra processing power for handling complex graphics and running large programs. Two PCMCIA slots give you the ability to use standard PCMCIA cards, such as a LAN adapter or memory cards.

The Notebook also features two expansion module bays. The first accommodates an FDD, LS-120. The second expansion module bay accommodates a 5<sup>1</sup>/<sub>4</sub>" CD-ROM drive, DVD-ROM drive or a second HDD.

To keep pace with the accelerated advances in technology, your Notebook provides extensive upgrade options, including an exchangeable LCD panel, CPU upgrades, a removable hard disk drive, PC cards (including MPEG 2 and FAX MODEM cards), an optional port replicator, and memory expansion cards.



## Unpacking the Notebook

The Notebook comes securely packaged in a sturdy cardboard shipping carton. Open the carton and carefully remove the contents. If anything is missing or damaged, please contact your Notebook dealer immediately. The shipping carton should contain the following items:

- The Notebook computer
- An AC adapter
- An AC power cord
- A Standard NI-MH or Li-Ion Battery Pack
- Software Drivers and Utility Diskettes
- This User's Manual
- A Carry Bag

Do not throw the packaging materials away. You may need them later if you have to ship the computer for repairs.

Using a computer for extended periods of time with a poor workstation setup and incorrect work habits can cause health problems. For more information on ergonomics, contact your nearest computer bookstore, or local library.

## Accessories and Optional Devices

To further enhance the utility of your Notebook computer, there are several accessories and optional products available from your dealer.

- Additional Battery Packs
- SO-DIMM 3.3V EDO RAM Modules (16MB/32MB/64MB/128MB modules)
- SO-DIMM 3.3V SDRAM Modules (16MB/32MB/64MB/128MB modules)
- DVD-playback kit PCI extension card module
- LS-120 Drive Module
- MPEG-2 video compression module
- Internal K56flex Fax/modem
- Port Replicator with two type II PCMCIA slots

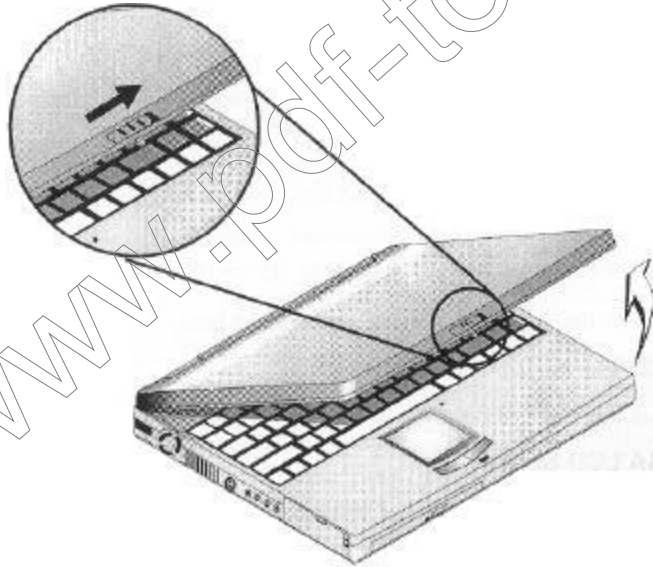
- 2dHDD module

## Getting to Know Your Computer

### Opening the LCD Panel

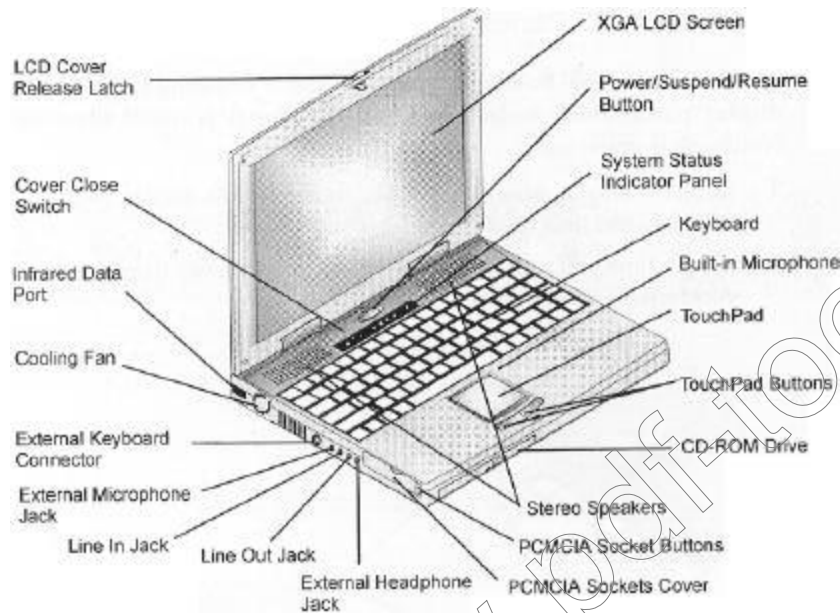
At the front of the Notebook you will find a retaining latch on the display panel which locks the display in closed position when the Notebook is not in use.

1. Slide the display panel latch to the right until the display panel releases, and then raise the LCD screen.
2. At any time you can tilt the display toward or away from you to a comfortable viewing position.



## Front Right View

With the LCD screen open, you will see several features important for operating your Notebook computer.



Each of these features is briefly described below.

### LCD Cover Release Latch

Slide this latch to the right to open the LCD cover.

### XGA LCD Screen

Your Notebook computer is equipped with a replaceable color Liquid Crystal Display (LCD) screen that supports 1024 x 768 x 16M.LCD resolution utilizing an AGP BUS. A built-in backlight allows you to comfortably view the screen even when ambient lighting is low.

An optional external VGA/SVGA color display monitor can also be connected to the external CRT connector on the rear panel of the computer.

## Power/Suspend/Resume Button

Pressing this button when the computer is in Suspend mode will resume normal operation.

## System Status Indicator Panel

The system status indicator panel keeps you informed of the computer's operating status. There are also three system status indicators—Power, Suspend, and Battery Charge—on the LCD cover.



When lit indicates that the AC adapter is connected.



The A icon indicates that the battery is being charged (or discharged when the AC adapter is not connected).



When Orange indicates that the AC adapter is connected and the battery is being charged. When the battery is charged to full capacity the LED is Green.



Indicates when lit that the Notebook is in Suspend mode. See Chapter Three for information on Power Management modes.



Appears when the PCMCIA card is inserted to the PCMCIA slot. See Chapter Three for information on using PCMCIA cards.



Appears when the computer is accessing the LS-120 drive or the FDD drive.



Indicates that the computer is accessing the hard disk drive.



Indicates that the keyboard is in Num Lock mode.



Indicates when the keyboard is in Caps Lock mode. In this mode, the keyboard produces uppercase text when you press a key.

When you press the Caps Lock key again, the indicator goes off and the keyboard produces lowercase text.



Indicates when the keyboard is in Scroll Lock mode. Some applications will move information across the screen differently when Scroll Lock is on.

## Keyboard

Your computer has an 84-key enhanced keyboard that provides all the functions of a standard 101/102 key keyboard.

## The Built-in Microphone

The built-in microphone is located to the right of the TouchPad.

## TouchPad

The TouchPad is hardware-compatible with the IBM PS/2 mouse and software-compatible with the Microsoft mouse.

## TouchPad Buttons

The buttons below the TouchPad correspond to the left and right buttons on a standard mouse. The PS/2 compatible mouse will work with the Notebook PC's TouchPad simultaneously.

## The CD-ROM Drive

Your Notebook comes with a swappable 20X (or higher) 5.25" IDE CD-ROM drive. The CD-ROM drive is swappable with a Digital Versatile Disk (DVD) drive, and a second HDD.

## Stereo Speakers

The internal speakers provide true stereo sound.

### PCMCIA Socket Buttons

The computer has two PCMCIA connectors (two PCMCIA type II connectors or one PCMCIA type III connector). The upper socket is PCMCIA socket "0"; the lower socket is socket "1".

The upper ejection button is for socket "0", the lower button is for socket "1".

### PCMCIA Sockets Cover

Open this cover to access the PCMCIA sockets. The computer's PCMCIA sockets let you extend the capabilities of your computer by inserting PC cards.

The cards are "hot swappable" and change cards without having to reboot your computer.

### External Headphone Jack

Connect stereo headphones to this jack to listen to the Notebook's audio output.

### Line Out Jack

This is for speaker output.

### Line In Jack

This jack is for auxiliary input. The auxiliary input can be used to connect an external audio source (cassette player, CD player, etc.) to your Notebook.

### External Microphone Jack

This mono microphone jack is used to connect an external microphone.

### External Keyboard Connector

You can connect an external keyboard, numeric keypad, or IBM PS/2 compatible mouse to this socket, marked with the keyboard/mouse icon.

You can operate both the internal keyboard and an external keyboard at the same time.

### Cooling Fan

Keep this fan unobstructed to allow proper ventilation to the Notebook's internal components.

### Infrared Data Port

The Infrared Data Port allows your Notebook to become truly wireless. You can use this port to transfer large amounts of data very quickly to any other machine (Notebook computers, printers, etc.), which is also equipped with an IrDA-compliant IR port.

This allows you to print documents without any inconvenient cable hookups.

### Cover Close Switch

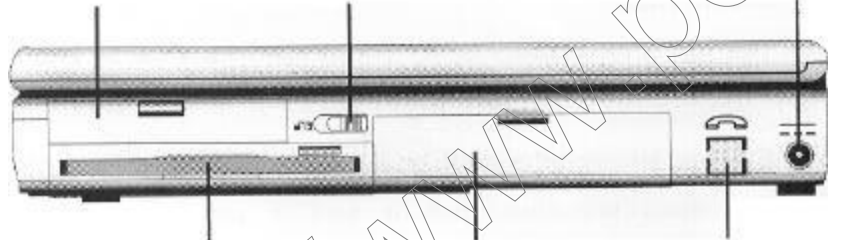
When you close the LCD cover, this switch turns off the LCD backlight.

### Right View

Removable Hard  
Disk Drive

Battery Lock

DC-IN Connector



Floppy Disk Drive

Battery

RJ-11 Connector Cover

### Removable Hard Disk Drive

Your computer includes a removable 2.5-inch IDE hard disk drive (12.7mm in height) with 1.44GB or more storage capability.

The Notebook PC's BIOS automatically detects IDE drive types. Consult your dealer for information on changing your Notebook's HDD.

### **The Floppy Disk Drive (FDD)**

Your Notebook has a 3.5" floppy disk 1.44MB (FDD) installed.

### **Battery Lock**

Slide the battery lock to the left when removing the battery module from the battery bay.

### **Battery**

Your Notebook comes equipped with a factory-installed battery pack module. After the battery runs down, the module can be removed and replaced with a charged battery.

### **RJ-11 Connector Cover**

If you install an optional internal modem in your Notebook (see **Installing Optional Devices**, Chapter Four), this cover must first be removed to connect an RJ-11 connector to the modem. The RJ-11 connector cover can easily be levered free with a flat-tipped screwdriver.

### **DC IN Connector**

Plug the AC adapter into this connector. Refer to Chapter Two, **Connecting to a Power Source**, for more information.

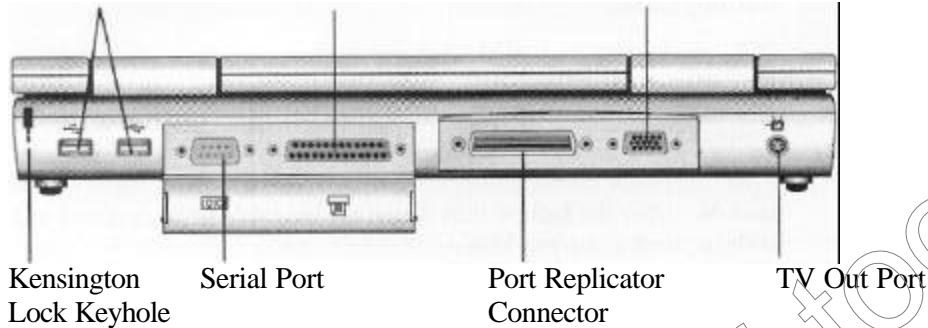


## Rear View

USB Ports

Parallel Port

External Monitor Port



### Kensington Lock Keyhole

Your computer includes a keyhole to be used with a standard Kensington lock. You can connect the Notebook lock to a large object with the Kensington lock to prevent theft of your Notebook. See the documentation that comes with your Kensington lock for more information.

### USB Ports

Your computer includes two Universal Serial Bus (USB) ports. USB is the latest development in Plug and Play technology. It will eventually replace the need for separate connectors for external keyboards, serial ports, and parallel (printer) ports. With broad industry support, USB is sure to play an important role in the design of future peripheral devices.

### Serial Port

This port is used to connect RS-232 serial devices to the Notebook. Three types of serial devices are external mice, serial printers, and fax/modems.

### Parallel Port

This port allows you to easily connect a parallel printer or plotter using this 25-pin bidirectional female port.

### Port Replicator Connector

Connect the optional Port Replicator to the 204-pin Port Replicator connector.

The Port Replicator further enhances your Notebook's portability by making it easy for you to connect and disconnect peripheral devices to your Notebook. Please consult your dealer for details.

### External Monitor Port

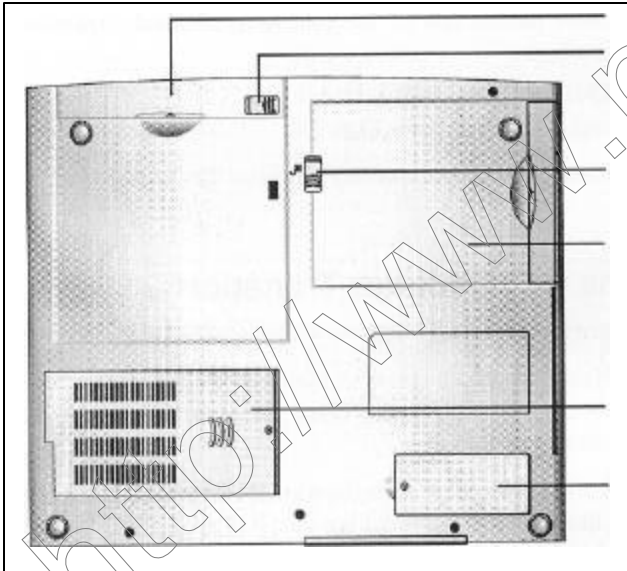
This port allows you to easily connect an external VGA/SVGA display monitor into your Notebook using the 15-pin female connector.

### TV Out Port

This 4-pin S-Video port allows you to view the Notebook's Video output on a television monitor.

### The Bottom View

The following describe components at the bottom of the Notebook.



CD-ROM Drive

CD-ROM Release Latch

FDD Release Latch

FDD Drive

CPU Cover

Modem/MPEG-2 Compartment Cover

### **CD-ROM Drive**

The Notebook's CD-ROM drive can be removed and replaced with a DVD-ROM drive, or second HDD.

### **CD-ROM Release Latch**

Press this latch to release the CD-ROM drive, DVD-ROM drive, or second HDD from the CD-ROM bay.

### **FDD Release Latch**

Press this latch to release the FDD drive, LS-120 drive.

### **FDD Drive**

The Notebook's FDD drive can be removed and replaced with an LS-120 drive.

### **CPU Cover**

This covers the CPU compartment providing easy access to allow for upgrades. Only experienced service technicians should open this cover.

### **Modem/MPEG-2 Compartment Cover**

This compartment houses one of the following optional expansion cards:

- Internal K56flex Fax/modem
- MPEG-2 video compression module

For more information refer to **Installing Optional Devices** in Chapter Four.

### **Preparing the Notebook for Transport**

To prepare the computer for transport, you should first disconnect all peripherals. Make sure the computer is turned off before you do this. After disconnecting all peripherals, close the rear port covers to protect the connectors.

The Notebook's hard disk head is self-parking. This means that the Notebook can be directly turned off from the DOS prompt. Close the LCD panel and check that it is latched securely to the computer.

Make sure the floppy drive does not contain a diskette. When a diskette is inserted in the floppy drive, the eject button pops out. If you attempt to transport the Notebook with a diskette in the drive, you risk damaging the eject button.

The computer has an optional soft carrying case. It will keep out dirt and dust and protect your Notebook's casing from becoming scratched or cracked.

If you intend to use battery power, be sure to fully charge the battery pack and any spares. Remember the Adapter charges the battery pack as long as it is plugged into the computer and an AC power source.

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# Chapter 2

## Getting Started

### Operating Environment

You can use your computer under a wide range of environmental conditions. To ensure long use and continued high performance, consider the following factors when setting up your computer:

- Set the computer on a flat, stable surface. To prevent damage to the computer's hard disk drive, avoid using the computer where it will be exposed to strong vibration.
- Place the computer away from electromagnetic or radio frequency interference (for example, television/stereo sets, copying machines, and air conditioners).
- Avoid using or storing the computer where it will be exposed to extreme temperatures. In particular, do not leave the computer in direct sunlight, over a radiator, or near a heat source for a long period of time. High temperature can damage the circuitry.
- Avoid exposing the computer to high or low humidity. Extreme humidity can contribute to disk drive failure.
- If you are using the computer with the AC adapter, do not allow anything to rest on the power cord. Do not place the computer where people can step on or trip over the cord.
- The openings on the computer are provided to protect the computer from overheating. To ensure reliable operation, leave about 10 cm (4 inches) around the computer for unobstructed air circulation. Avoid exposing the computer to dust or smoke.

## Connecting to a Power Source

You can use the provided AC adapter to supply your computer with power from an AC wall outlet. Your computer also comes with a rechargeable battery pack that lets you use the computer without an external power source.

## Connecting the AC Adapter

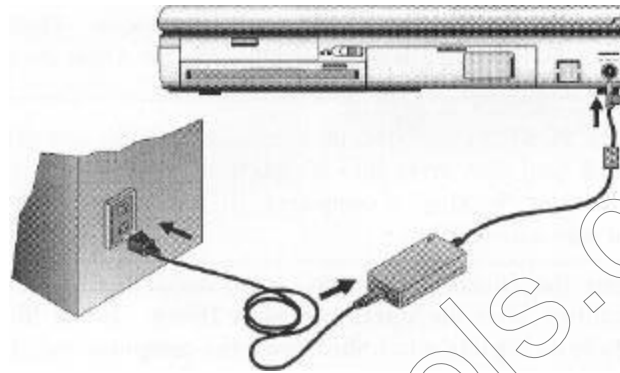
A universal AC adapter is provided to supply your computer with power from an AC wall outlet. You can also use the AC adapter to charge the computer's battery pack. (For more detailed information, please refer to “Charging the Battery Pac” in the later part of the chapter.)

The AC adapter converts high-level AC voltage to the much lower level DC voltage appropriate for the computer. The adapter's AC input voltage can range anywhere from 100 to 240 volts, covering the standard voltages available in almost every country.

The power cord for the AC adapter requires a two-hole grounded AC outlet. An optional four-or six-plug power strip is a convenient addition, especially if you have only one wall plug and several devices that need electricity. You can buy power strips with built-in electrical surge protection. This provides limited protection from spikes in the local voltage that can cause damage.

To connect the computer to an external power source:

1. Plug the AC adapter's connector into the DC-IN connector on the right side of the computer.
2. Connect the power cord to the AC adapter and then to a wall outlet.



**Caution:** The best kind of AC power source to connect your Notebook to is a UPS (Uninterruptible Power Supply). Lacking this, use a power strip with a built-in surge protector. Do not use inferior extension cords as this may result in damage to your Notebook. The Notebook comes with its own AC adapter. Do not use a different adapter to power your computer, and do not use the AC adapter to power other electrical devices.

Whenever possible, keep the AC adapter plugged into the Notebook and an electrical outlet to recharge the battery. Although not necessary, it is also a good idea to protect the display panel by always lowering it when the Notebook is powered off.

**Caution:** Never turn off or reset your Notebook while the hard disk copy disk is in use and the FDD and/or HDD status icon is lit, doing so can result in loss or destruction of your data. Always wait at least 5 seconds after turning your Notebook before turning it back on; turning the power on and off in rapid succession can damage the Notebook's electrical circuitry.

### Turning on Your Notebook Computer

Before turning on your computer, make sure you are familiar with its features (Chapter One).

Now that your Notebook is opened and connected to a power source, it's time to turn it on. This is done by pressing the power button located above the System Status Indicator Panel.



Hold the button down for a second or two and release. The Power-On Self Test (POST) will run automatically. See the **About the Power-On Self Test** section later in this chapter.

After the POST is completed, the computer reads the operating system from the hard disk drive into computer memory (this is commonly referred to as "booting" a computer). If Windows 95 is installed, it should start automatically.

To turn the Notebook off, save your work and close all open applications, click on **Start**, then **Shut Down**. In the **Shut Down Windows** dialog box select **Shut down the computer** and click Yes.

## About the ROM BIOS

Your Notebook computer is configured with a customized Basic Input/Output System (BIOS), which is a set of permanently recorded program routines that give the computer its fundamental operational characteristics. The BIOS also tests the computer and determines how the computer reacts to specific instructions that are part of programs.

The BIOS is made up of code and programs that control the major input/output devices on the computer. The BIOS also contains a set of boot routines called the Power-On Self Test (POST) that check the computer when you turn it on.

## About BIOS Setup

When you turn on your computer, the system is configured using default values. For a detailed description of the BIOS System Setup, see Chapter Five.

The BIOS System is a ROM (Read Only Memory) based software utility that displays the system's configuration and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed CMOS RAM that holds this information even when the power is turned off. Whenever the Notebook is turned on, the system is configured with the values found in CMOS memory.

## About the PowerOn Self Test

The Power-On Self Test (POST) runs every time you turn on the computer. The POST checks memory, the main system board, the display, the keyboard, the disk drives, and other installed options.

A few seconds after you turn on your computer, a copyright message appears on your display screen. A memory test message will appear next. The test continues until all installed memory is tested. Normally, the only test routine visible on the screen will be the memory test.

Two kinds of malfunctions can be detected during the POST:

- Error messages that indicate a failure with the hardware, the software, or the BIOS. These critical malfunctions prevent the computer from operating at all or could cause incorrect results. An example of a critical error is a microprocessor malfunction.
- Messages that furnish important information (such as memory status) on power-on and boot processes. These non-critical malfunctions are those that cause incorrect results that may not be readily apparent. An example of a non-critical error would be a memory chip failure.

In general, if the POST detects a system board failure (a critical error), the computer halts and generates a series of beeps. If failure is detected in an area other than the system board (such as the display, keyboard, or an adapter card) an error message is displayed on the screen and testing is stopped.

The POST does not test all areas of the computer, but only those that allow it to be operational enough to run any diagnostic program. If your system does not successfully complete the POST, but displays a blank screen, emits a series of beeps, or displays an error code, consult your dealer.

## Resetting the System

After installing a software application package on your hard disk drive, you may be prompted to reset the system to load the changed operating environment. To reset the system, or "reboot," press the [Ctrl] + [Alt] + [Delete] keys simultaneously.

This is known as a "warm boot." This key combination acts as a "software" reset switch when you encounter hardware or software problems, which lock up the Notebook.

If this key combination does not shut down the Notebook, you can reset the Notebook by using the Notebook's power button. Should the Notebook lock up for some reason, pressing this button powers the Notebook off.

### Adjusting the Brightness

After turning on your computer, you may want to adjust brightness of the LCD screen. To adjust the brightness on the LCD screen, press and hold down the [Fn] key in the lower left hand corner of the keyboard and press the [F7] key to reduce the brightness or [F8] to increase the brightness.

### Operating on Battery Power

Your computer comes with a rechargeable battery pack that lets you operate the computer without an external power source. When the battery pack is fully charged, you can operate the computer for approximately 2.0 hours under the following conditions:

- The battery pack initially has a full charge.
- No peripheral devices are installed.
- The disk/CD-ROM drives run no more than 10% of the time.

**Note:** Only use batteries that are approved by an authorized dealer. All batteries are not the same and therefore should be treated as such. Using the wrong battery could cause serious damage to your computer and yourself through toxic emission.

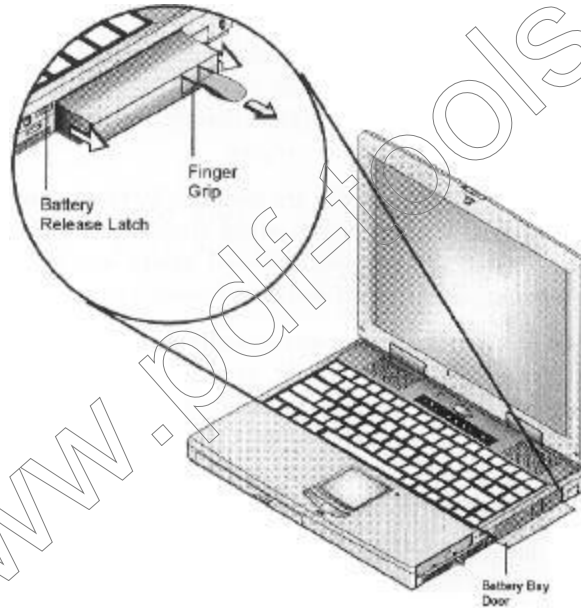
### Inserting and Removing the Battery Pack

The battery pack should already be inserted in your Notebook computer when you unpack it. If it is not inserted, follow these directions:

1. Turn off the Notebook and open the battery bay door. Slide the battery release latch to the left.
2. Insert the battery into the empty compartment. It is designed so that it only fits one way. It should easily "click" into place.
3. Slide the battery release latch to the right and close the battery compartment cover.

To remove the battery pack:

1. Turn off the computer and open the battery bay door. Slide the battery release latch to the left.
2. Lift the battery finger grip and pull the battery from the bay.



### Charging the Battery Pack

The installed battery pack charges automatically any time the computer is connected to the AC adapter and an external power source. The NI-MH battery pack can be fully charged in about 2.5 hours when the computer is turned off or about four hours when the computer is on.

The Li-Ion battery can be fully charged in about 4 hours when the computer is turned off.

Note. It is a good idea to occasionally discharge the battery fully to preserve its operating performance. For details, see "Batteries & Battery Discharge" in Chapter Eight.

## A Word about Ergonomics

**Ergonomics** is the study of how people with their different physical characteristics and ways of functioning relate to their working environment (the furnishings and machines they use).

The goal of Ergonomics is to incorporate comfort, efficiency, and safety into the design of keyboards, computer desks, chairs, and other items in an effort to prevent physical discomfort and health problems in the working environment.

Because more and more people are spending large amounts of time in front of computer monitors, scientists from many fields including anatomy, psychology, and occupational safety are involved in the study of ergonomically sound work environments.

If your budget permits, buy ergonomically designed furniture such as chairs, shelves, and desks that fit your physical characteristics and work methods. Most furniture manufacturers haven't considered the particular shape of your body when designing workstations. If you are going to be sitting for extended periods of time, an ergonomically designed chair may well be worth the extra expense.

You can, however, create an ergonomically improved workstation without spending much money. Following are a few tips to help you work effectively without a lot of physical discomfort:

- Purchase a chair with armrests and good back support. Don't slouch when sitting; keep your back straight.
- Place the LCD panel or external monitor so that it is a little above eye level - when using a word processor remember to **Scroll Down** often to ensure you are reading or typing at the top of the screen; this will help to prevent neck strain:

- Try to place the LCD panel or external monitor so that there is little glare from the sun on the monitor.
- Walk around the room every hour.
- Every half-hour look away from the computer screen for a few minutes.
- Place everything that you need to work within easy reach.

## Special Function Keys

The following table lists the hot key functions for the Notebook computer.

<u>Key Combinations</u>	<u>Definitions</u>
[Fn] + [F1]	This key combination enables/disables the mute feature for the Notebook's audible beeps (e.g. low battery warning beeps).
[Fn] + [F3]	Decreases the audio volume level.
[Fn] + [F4]	Increases the audio volume level.
[Fn] + [F3] + [F4]	This key combination turns off the volume
[Fn] + [F5]	Decreases the contrast level—only models with DSTN display
[Fn] + [F6]	Increases the contrast level in models with DSTN display
[Fn] + [F7]	Decreases the brightness level
[Fn] + [F8]	Increases the brightness level
[Fn] + [F9]	This key combination toggles the display between the LCD display and an external TV
[Fn] + [F10]	Pressing the key combination switches the display 640 x 480, 800 x 600 and 1024 x 768. The display must be set to 640 x 480 in the control panel beforehand.
[Fn] + [F12]	Switches between LCD, CRT, and simultaneous (simulscan) displays.

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# Chapter 3

## Using the Notebook Computer

### Operating the Notebook

This chapter provides detailed information on how to use the Notebook's sophisticated hardware features. Most of the Notebook's hardware features can be described as input and output devices. An input device is, as its name suggests, a hardware device used to enter information to be processed by the computer. Examples of input devices are the keyboard and the TouchPad. An output device, such as an LCD display, monitor or printer, receives data from the computer and displays the information in a human-readable format. Other hardware components such as the serial port, parallel port and disk drives are both input and output devices, i.e., they can be used for transferring data to and from the computer.

### The LCD Display

The Notebook comes with a Color LCD display panel that supports the following display options:

<u>Display</u>	<u>Resolution</u>	<u>Color Depth</u>
12.1" TFT XGA	800 x 600	16M Color
14.1" TFT XGA	1024 x 768	16M Color

All displays support up to 1280 x 1024 x 16M color mode on an external CRT.



The LCD screen display results can be adjusted by changing the LCD panel angle, and the display brightness.

### Adjusting the LCD Screen Display

The LCD screen display can be adjusted by the following key combinations.

#### Key Combinations

#### Definitions

[Fn] + [F5]	Decreases the contrast level with DSTN display.
[Fn] + [F6]	Increases the contrast level with DSTN display.
[Fn] + [F7]	Decreases the brightness level.
[Fn] + [F8]	Increases the brightness level.
[Fn] + [F12]	Switches between LCD and CRT displays.

### LCD Care

LCD screens are delicate devices that need careful handling. Please pay attention to the following precautions:

- When you are not using the computer, keep the LCD screen closed to protect it from dust.
- If you need to clean your LCD screen, use a soft tissue to gently wipe the LCD surface.
- Do not put your fingers or sharp objects directly on the surface and never spray cleaner directly onto the display.
- Do not press on, or store any objects on the cover when it is closed. Doing so may cause the LCD to break.

### External CRT Display

You can hook up an external monitor through the 15-pin CRT connector. Three configurations are available:

- LCD only
- Simultaneous display of the LCD screen and CRT monitor
- CRT only

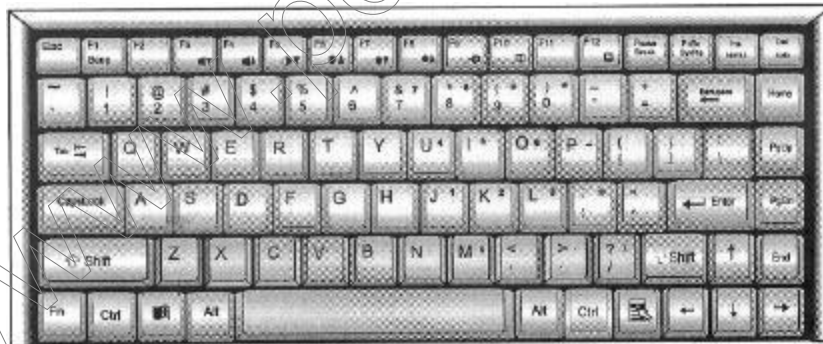
You can switch between these display configurations by pressing the key combination [Fn]+ [F12]. For information on connecting an external display, please refer to Chapter Four.

### A Tour of the Notebook's Keyboard

The Notebook's keyboard uses a standard QWERTY layout with the addition of special function keys and an embedded numeric keypad for number intensive data entry. The Notebook's enhanced keyboard design emulates a full-size desktop keyboard. Your keyboard supports Windows 95 by incorporating the two Windows specific keys. With the two Windows 95 keys you will be able to access and take advantage of many of the time-saving features of Windows 95 software.

The QWERTY layout means the alphanumeric keys located on the keyboard are in the same position as those found on a standard typewriter. The usage of these keys is straightforward. There are some keys such as Scroll Lock, Print Screen, etc., whose functions may be unfamiliar to you. This chapter identifies some of these keys and discusses their functions when used with either the Disk Operating System Software or other application software, such as word processors, spread sheet applications, or database management programs.

This section covers the Notebook keyboard and identifies several keys that you will commonly use when working with either the Disk Operating Software or other software. A description of some of the keys is provided below.





[Esc]: The Escape key allows you to cancel any specific command you may have just keyed in. For example, if you mistakenly hit the function key, [F1], in your word processor or spread sheet program, but want to "cancel" the command so that the computer will ignore the function key, just press [Esc].



[PrtSc/SysRq]: Pressing this key will cause whatever is on the screen at the time to be printed. Note that in some software programs, this key may be used in conjunction with other keys for other specific functions. Consult your software user's manual for more information. To use SysRq, press the [Fn] key and the [PrtSc/SysRq] key together.



[Scroll Lock]: When Scroll Lock is engaged, pressing the cursor control keys moves the cursor by fields of text. Press the scroll lock key once to engage this mode. Pressing it a second time will disengage the Scroll Lock function.



[Pause/Break]: The Break key is used in conjunction with the Control key ([Ctrl] + [Break]) to cancel a command.



[Caps Lock]: The [Caps Lock] key corresponds to a typewriter's Shift Lock key, but it only affects letter keys. The number keys and function keys are not affected. Even with the [Caps Lock] key engaged, if you want to generate the symbols and punctuation marks above the number keys, you must still use the [Shift] key. Note that when the [Caps Lock] key is engaged, the Caps Lock Status symbol comes on in the System Window display.



[Shift]: Similar to the typewriter's Shift key, this key allows you to type letters in "UPPER CASE."



[Ctrl]: Used by itself, the Control key has no effect in carrying out any commands. Like the [Alt] key, it is always used in combination with other keys. Its function depends mainly upon the type of software you are currently using. Refer to the user's manual of the software you are using for details on how to use this key.

## Windows 95/98 Keys

There are two special Windows 95/98™ keys on the keyboard. A brief description of each key is given below.



The key with the Window 95/98™ Logo activates the **Start** menu button on the bottom left of the screen.

The other key, which looks like a menu with a small arrow, activates the properties menu and is equivalent to pressing the left mouse button while pointing at any object on the Windows desktop.

## The Notebook's HotKey Controls

<u>Key Combinations</u>	<u>Definitions</u>
[Fn] + [F1]	This key combination enables/disables the mute feature for the Notebook's low battery warning beeps.
[Fn] + [F3]	Increases the speaker volume
[Fn] + [F4]	Decreases the speaker volume
[Fn] + [F3] + [F4]	These key combination turns off the volume
[Fn] + [F5]	Decreases the contrast level with DSTN display
[Fn] + [F6]	Increases the contrast level with DSTN display
[Fn] + [F7]	Decreases the brightness level
[Fn] + [F8]	Increases the brightness level
[Fn] + [F9]	This key combination toggles the display between the LCD display and an external TV.
[Fn] + [F10]	Pressing the key combination switches the display 640 x 480, 800 x 600 and 1024 x 768. The display must be set to 640 x 480 in the control panel beforehand.
[Fn] + [F12]	Switches between LCD and CRT displays.
[Ctrl] + [Pause Break]	Halts the current operation
[Ctrl] + [C]	Halts the current operation without clearing the keyboard buffer
[Ctrl] + [Alt] + [Del]	This is the warm boot key combination used to reset the computer

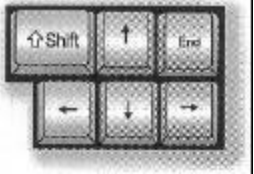
## The Function Keys

Notice the twelve function keys in the top row of the keyboard. These keys appear in sequence ([F1], [F2], [F3]...[F11], [F12]) from left to right. The functions of these keys vary with respect to the operating system and software in use. Refer to the appropriate software user's manuals for more detailed information on function key definitions.



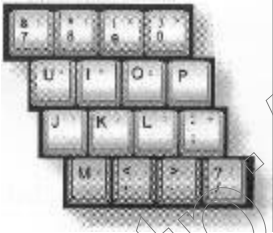
## The Cursor Keys

The four direction (arrow) keys control the movement of the cursor on the screen. They do not affect the displayed characters.



## Embedded Numeric Keypad

The embedded numeric keypad consists of 15 keys that make number intensive input more convenient. Like the [Num Lock] key, these keys are labeled in blue on the keycaps. Numeric assignments are located at the upper right of each key.



When the numeric keypad is engaged, the NumLock icon will appear in the System Window. The keypad is activated by pressing the [Fn] + [NumLk] key. If an external keyboard is connected, pressing the NumLock key on either the Notebook or external keyboard will enable/disable NumLock of both keyboards in unison.

To disable the Notebook numeric keypad while keeping the keypad on an external keyboard activated, use the [Fn] + [NumLk] hot key on the Notebook keyboard.

## The TouchPad

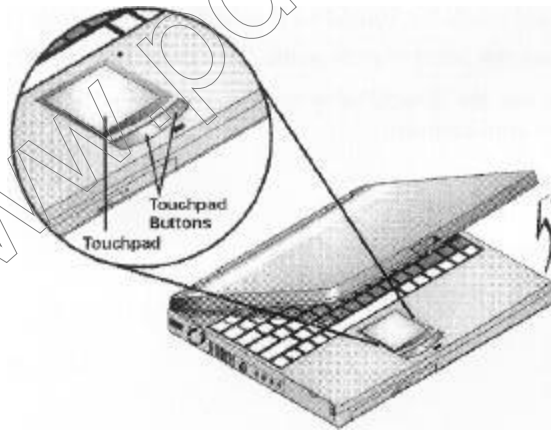
### Using the TouchPad

The TouchPad is a pressure sensitive pointing device that provides all the features of a two-button mouse.

The instructions listed below describe how to use the TouchPad.

1. The TouchPad is easily accessible by moving either your left or right thumb off the space bar and on to the TouchPad.
2. Gently move your thumb across the pressure-sensitive TouchPad in the direction you want the cursor to move.
3. The TouchPad offers another method of making selections in a software program called **double-tapping**. This function corresponds to double-clicking with a mouse.

Once the cursor has been moved to the object you want to select, lightly double-tap the pressure sensitive TouchPad itself. This double-tapping on the TouchPad will select the desired item and prompt the software to perform the related operation.



4. Clicking the buttons below the TouchPad makes selections, drags objects, or performs a variety of other functions depending on the software.
5. Double-clicking is a common technique for selecting objects or launching programs from icons. Once you have moved the pointer over the object you wish to select, rapidly press the left button two times. This action is commonly referred to as "double-clicking" on an object.

There are two ways to drag:

- Move the pointer to the desired location then press down the left button. While still holding down the left button, move the pointer to the desired location. Then release the button.
- Move the pointer to the desired location. Tap the TouchPad twice quickly as if you were double-clicking, however do not remove your finger after the second tap. While maintaining contact with the TouchPad, move the pointer ("drag") to the desired location. Lift your finger to finish dragging.

### TouchPad Precautions

The TouchPad is a pressure sensitive device. If not properly cared for, it can be easily damaged. Please take note of the following precautions.

- Make sure the TouchPad does not come into contact with dirt, liquids or grease.
- Do not touch the TouchPad if your fingers are dirty.
- Do not rest heavy objects on the TouchPad or the TouchPad buttons. You can use the TouchPad with Microsoft Windows as well as non-Windows applications.

## Connecting External Tracking Devices

### Connecting an External PS/2 Device

When you are using an external PS/2 device, the system will provide you with an application to toggle between the external PS/2 device and TouchPad as your choice of tracking device.

Note: This special application is only applicable when you are using any kind of PS/2 devices as your tracking tool.

### Connecting an External Microsoft's Intelli Mouse

When an external Microsoft's IntelliMouse is connected to your system, you will still be able to work on the TouchPad and external Microsoft's IntelliMouse at the same time but cause a compatibility problem.

Note: Remember that the Microsoft's IntelliMouse is not compatible with any PS/2 device. Both of them should not be enabled at the same time that will cause the unstable movement of the IntelliMouse cursor.

To solve the compatibility problem, follow the procedures below:

- Restart the system and press the [F2] key to enter the Setup Program.
- Proceed to the **Advanced** menu and scroll down to select the **Internal PS/2 Device** options.
- Press the **Enter** key to select the **Disable** option.
- When the system restarts, the Microsoft's IntelliMouse will now function as the system tracking device.



## Data Storage and Retrieval

Data storage and retrieval are two of the most fundamental tasks you will perform when working with your computer. The Notebook is equipped with a 3.5" floppy disk drive (FDD) and a hard disk drive (HDD). The HDD is removable allowing for easy upgrades.

These two types of drives and their associated circuitry comprise your computer's main data storage and retrieval system. The following sections will cover instructions for operating each of these drives.

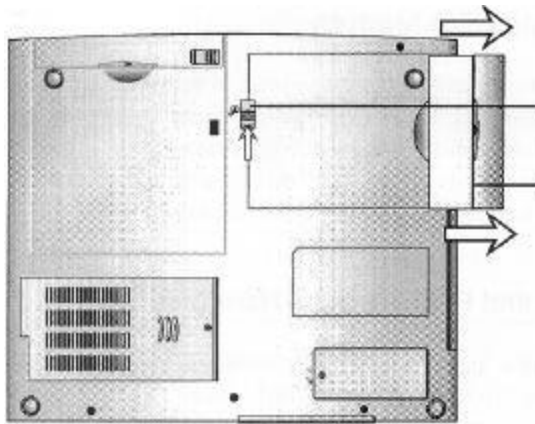
### The Floppy Disk Drive

Your Notebook features a removable high-density 3.5-inch floppy disk drive module. The floppy disk drive interfaces with the rest of the Notebook's system via a disk drive controller. It is designated drive A by the operating system.

### Removing the FDD Drive

The FDD drive is removable and swappable with other modules to give you versatility while minimizing weight and size. To remove the FDD drive:

1. Save your work and turn off the computer.
2. Turn the Notebook over so that the rear ports are facing you
3. Push the FDD release latch in the direction of the arrow. Pull on the FDD finger grip to slide the FDD module out of the bay.
4. To insert, slide the module into the drive bay so that it mates with its connector. You will hear the release latch click shut.

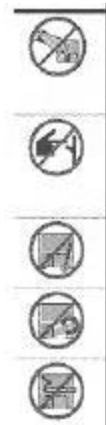


FDD Release Latch

FDD Finger Grip

## Caring for Disks

Under normal conditions a diskette's rigid plastic case will protect it from damage. However, data stored on floppy diskettes are easily corrupted. Follow the protective measures listed below to preserve the integrity of data stored on floppy diskettes.



Never touch the magnetic surface of the disk. When handling diskettes, take care that you don't drop them. Keep diskettes away from liquids.

Never turn off, reboot, or reset the computer when a diskette is in the drive and the drive activity light is on. Do not transport the computer with diskettes inserted in the drive.

Do not expose diskettes to extreme temperatures or high humidity.

Keep diskettes away from magnetic fields generated by power supplies, monitors, magnets, etc.

Don't smoke in the same room where diskettes are used or stored. Particles from cigarette smoke are large enough to scratch the surface of the disk. Store diskettes in a dry, dust-free environment.

**Note:** Never turn off or reset the Notebook while the LED is on. Always try to store your diskettes in a dry, clean container to protect them from the environment and magnetic fields.

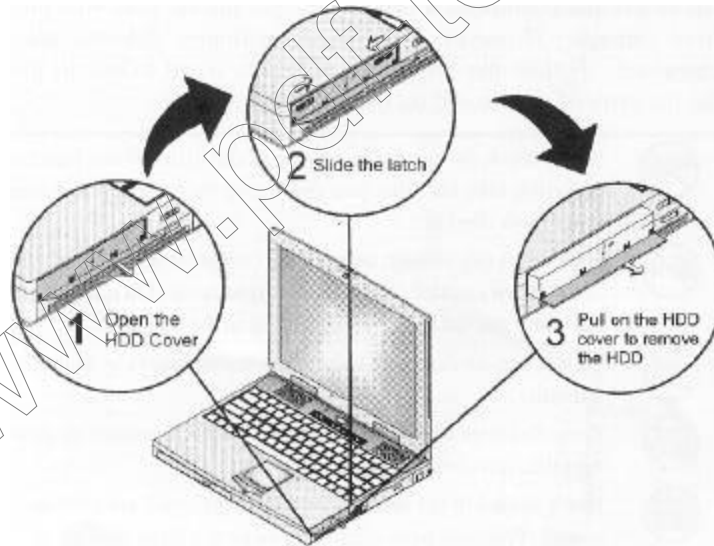
## The Removable HDD Module

A hard disk is similar to a floppy diskette in that it magnetically stores data and retains that data when the computer is turned off. Your computer's hard disk drive is an integrated electronic drive, commonly referred to as an IDE drive, with a form factor of 2.5 inches. The formatted capacity of the Notebook's HDD is 2.1GB or above.

### Removing and Replacing the HardDisk Drive

The Notebook's hard disk is easily removed and replaced to allow easy upgrades. To remove the hard disk drive:

1. Open the HDD cover and slide the latches to release the HDD.
2. Gently pull on the HDD cover and slide the HDD out of its bay.
3. To reinsert the HDD module, simply slide the HDD into its bay until it mates with its connector.
4. Lock the HDD module by sliding the latches in the opposite direction just as when you are releasing the HDD mentioned in Step 2. Close the HDD cover.



## The CD-ROM

### Features of the CDROM Module

The features of the CD-ROM drive are listed below.

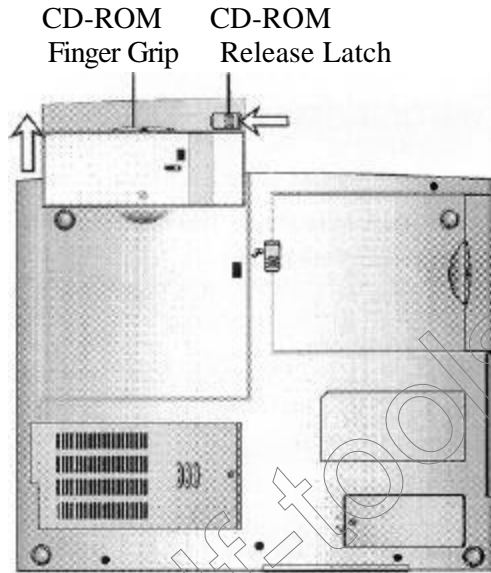
- The Audio Play feature allows you to play music CDs
- Front panel load/unload button
- 640 ME capacity
- MSCDEX compatible
- Supports CD-DA, CD-ROM mode 1 and mode 2, Multi-Session Photo CD™, CD-I/Video CD (ps.)
- Low power consumption
- 12.7mm height

### Removing the CD-ROM Drive

The CD-ROM drive is removable and swappable with other modules to give you versatility while minimizing weight and size.

To remove the CD-ROM drive:

1. Save your work and turn off the computer.
2. Turn the Notebook over so that the rear ports are facing you.
3. Push the CD-ROM release latch in the direction of the arrow.
4. Pull on the CD-ROM finger grip to slide the CD-ROM module out of the bay.
5. To re-insert, slide the module into the drive bay so that it mates with its connector. You will hear the release latch click shut.



### Precautions for Handling CD-ROM Discs

Keep these precautions in mind when handling CD-ROM discs.

- Always hold the disc by the edges, avoid touching the surface of the disc.
- Use a clean, dry, cloth to remove dust, smudges, or fingerprints. Wipe from the center outward.
- Do not write on the surface of the disc.
- Extremes in temperature may damage discs. Store discs in a cool dry place.
- Do not use benzene, thinners, or cleaners with detergent. Only use CD-ROM cleaning kits.
- Do not bend or drop the discs.
- Do not place objects on top of discs.

## Loading a Disc

To play a CD disc, follow the instructions listed below.

1. Push the CD-ROM eject button on the CD drive door, found on the front of the computer. Gently pull the tray all the way out.
2. Carefully lift the CD-ROM by the edges and make sure the shiny surface is face down (the side with no writing on it). Carefully insert the CD-ROM onto the tray. Push the CD-ROM down gently so that it snaps onto the center ring.
3. Push the tray back into the drive.

To remove a CD-ROM, do the following:

1. Check the LED display and make sure that the computer is not accessing the CD-ROM drive.
2. Push the eject button and pull the tray all the way out.
3. Carefully pick up the CD by the edges and—while pressing down on the center ring—remove the CD-ROM from the tray. Push the tray into the computer until it closes.

**Note:** Do not insert any foreign objects into the disc tray. When not in use, keep the tray closed to prevent dust or dirt entering the drive unit. If you experience difficulty when ejecting the CD disk tray, stretch a paper clip (or use a pin or a thin metal rod) and insert it into the emergency eject hole located on the right side of the front panel. The CD disk tray should eject immediately. This procedure can also be used to remove a CD from the drive when the Notebook is powered off.

## The Multimedia Sound System

The Notebook's built-in audio capabilities allow you to take advantage of a wide range of education and entertainment multimedia software available on today's growing market without the additional costs of add-on cards and peripheral hardware.

The multimedia sound system features a sophisticated on-board digital audio generator that produces realistic, music and human voice sounds in 16-bit stereo.

The Notebook is equipped with two internal stereo speakers, a microphone, and both input and output audio ports for external audio units. An external microphone can be connected to the microphone jack. External speakers or headphones can be connected to the Notebook's audio-out jack.

External audio devices can be connected to the Line in jack. All audio features are software controlled. The Notebook's multimedia sound system includes the following features:

- An ESS PCI chipset
- Supports Sound Blaster Game compatibility
- Supports Windows Sound System compatibility
- Full Duplex operation
- Hardware and software master volume control
- 64-Voice Wavetable synthesizer with Directsound support
- Dynamic filtering reduces noise and distortion rate
- 16-bit digitized audio playback
- A built-in microphone for convenient recording
- Two built-in stereo speakers
- Digitized audio recording through the Notebook's built-in microphone or any external source

### Audio Volume Control

The Notebook is equipped with hot-key volume controls: Pressing the [Fn] + [F3] hot-key combination decreases the audio output volume, press the [Fn] + [F4] hot-key combination to increase the volume.

### IR Communication

At the left side of the Notebook is the Infrared (IR) communication module that consists of one Light Emitting Diode (LED) and one photo sensor.

Its function is the same as a television remote control device that act as a transmitter and the photo sensor acts as a receiver. The transmitter emits a signal stream consisting of data in the form of pulses of infrared light. The receiver picks up pulses of infrared light transmitted by other IR modules.

The IR module enables you to perform wireless, serial communication. Use an FIR-specified application to transmit or receive data via the Notebook's FIR module.

The following table briefly describes each of the IR modes available. You must set these modes in BIOS. Please refer to Chapter Five for information on the BIOS Setup program.

<u>IR Type</u>	<u>Description</u>
FIR	Fast Infrared.
IrDA	Infrared Data Association protocol

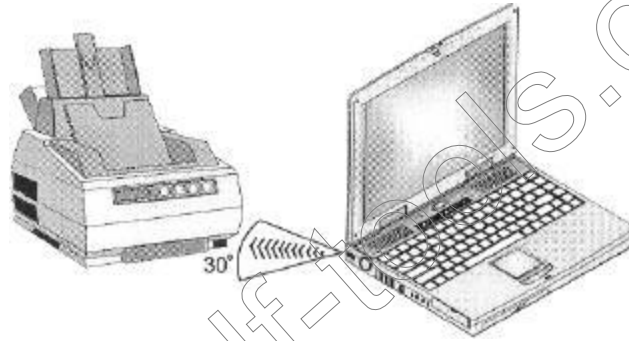
Follow the guidelines listed below when using the Infrared Communication module to transmit or receive data.

- Make sure the Infrared Communication field in the BIOS Setup program is set to FIR. Refer to Chapter Five for information on the BIOS Setup program.
- Ensure that the Notebook's FIR module is properly lined up with the other device's Infrared Communication module. The angle between the two Infrared Communication modules should not exceed  $\pm 15^\circ$ .
- There should be a clear, unobstructed path between the two Infrared Communication modules; otherwise the optical signal will be blocked. Likewise, do not place anything between the two Infrared Communication modules during data transmission.
- Make sure the distance between the Notebook's FIR module and the other device's Infrared Communication module does not exceed one meter.
- Do not move either the Notebook or the other device during transmission of data; otherwise data transmission will be distorted resulting in loss of data or a system crash.



- An error can occur if FIR transmission is conducted in an environment with high levels of noise. To avoid transmission errors do not transmit Infrared Communication signals near equipment with compressors, such as refrigerators or air conditioners.

Refer to the following illustration to set up the FIR transmitter and receiver.



### PCMCIA Cards and Expansion Sockets

The Notebook features two PCMCIA expansion sockets designed to interface with one or two Type II cards or stacked to accommodate one Type III card.

#### Inserting a PCMCIA Card

The computer will emit a medium tone followed by a high tone when a PC card is inserted. When you eject a card, the computer will emit a high tone followed by a medium tone. You can insert and remove a PC card whether the computer is turned On or Off.

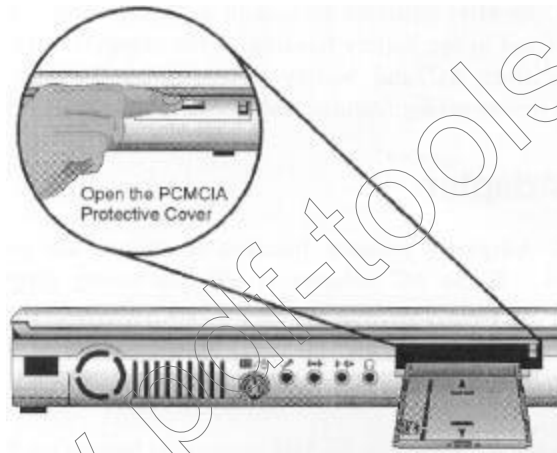
Follow these instructions to insert a PCMCIA card:

1. Hold the PCMCIA card with the arrow side up and the connector side toward the socket.
2. Align the card connectors with the appropriate socket and carefully slide the card into the socket until it locks into place.

The system will beep once to indicate that it has detected the PC card.

3. The eject buttons are located next to each slot on the right. Note that there are two eject buttons, one per slot. To remove a PC card push the respective eject button, the button will pop out, push the button again to eject the PCMCIA.

The upper button will eject a Type II PCMCIA card while the lower button will eject a Type II or Type III PCMCIA card from the lower socket. Then remove the card and store it properly.



Note: When inserting a Type III PC card, make sure the connector is inserted in the lower socket. Before ejecting a PC card, ensure that it is not being accessed by the System. Memory card user never change a card's write protect switch while the card is inserted into a PCMCIA socket.

For example, if the message "Write protect error writing Drive x " is displayed, the user has to change the write protect setting on the memory card. To change the switch setting, (a) eject the card, (b) change the switch setting, and (c) insert the card.

## Power Saving Modes

This section contains information on the Notebook's power system, including the AC Adapter, the battery system, recharging the battery, and tips for conserving battery power. Also included are detailed descriptions of power management and each of the power modes.

The power system is comprised of two parts, the AC Adapter and the battery system. The AC Adapter converts AC power from a wall outlet to the DC power required by the computer.

The battery pack is a set of Lithium-Ion (Li-Ion) or Nickel-Metal Hydride (Ni-MH) batteries housed in a plastic shell. There is one pack inserted in the battery housing of the computer. In this section we'll go over AC and battery power operation and explain the software power saving features that are built into the computer.

### The AC Adapter

The AC Adapter's primary function is to provide power to the Notebook. If the AC Adapter is not functioning properly, please consult your dealer immediately for support.

### The Battery Power System

The Notebook's Li-Ion or NI-MH removable battery pack is found in the battery compartment. A fully charged pack will provide approximately 1.6 to 2.0 hours of battery life. The battery life can be extended by using the power management features.

Before using the computer on battery power for the first time, check the battery status icon on the Windows Toolbar to make sure the battery is fully charged. See **Battery Status** later in this section for a description and explanation of the Windows Battery icon.

Charging the battery takes about 2.5 hours for the NI-MH battery pack. The Li-Ion battery pack takes about 4 hours to charge. If possible, always charge the battery completely.

## Removing the Battery Pack

To remove the battery pack from its compartment, please refer to Chapter Two, Inserting and Removing the Battery Pack.

## Preparing the Battery Pack for Use

Before using the battery pack for the first time, the Smart Battery IC within the battery pack should be calibrated in order to get accurate reporting of remaining battery life status. To calibrate the battery pack follow the instructions below:

1. Insert the battery into the battery compartment and turn on the Notebook (Refer to Chapter Two, Inserting and Removing the Battery Pack). If the battery is completely without power go to the next step. Otherwise, let the battery run down until the battery low-low warning beeps are heard. The system will automatically enter Suspend mode.
2. Turn the Notebook off. Connect the AC adapter and let the battery fully recharge. When the battery charge indicator turns off, the battery is fully charged.
3. The battery pack is now calibrated properly.

In general, using the battery until the low-low battery warning indicator appears and fully recharges the battery each time (full discharge/charge cycle) will ensure the accurate reporting of the battery gauge status.

## Automatic Battery Pack Charging Function

You can automatically charge the battery pack by using the AC Adapter. When running the Notebook off AC power, the inserted battery pack will automatically be recharged while you are working on your Notebook. The charge time is about two and a half-hours (Ni-MH) or four hours (Li-Ion) when the Notebook power is turned off.

The following table summarizes the charging modes:

**Charge Mode**

Fast

**Charge Time**

- **NI-MH Battery Pack**  
2 - 2.5 hours with the system off or in Suspend mode.
- **Li-Ion Battery Pack**  
4 hours with the system off or in Suspend mode.

Trickle

(NI-MH battery pack only)

When the system is on or off, a trickle charge is supplied to the NI-MU battery pack to maintain full charge capacity after being charged.

Pre-Charge

(Li-Ion battery pack only)

A pre-charge is supplied to the Li-Ion battery pack.

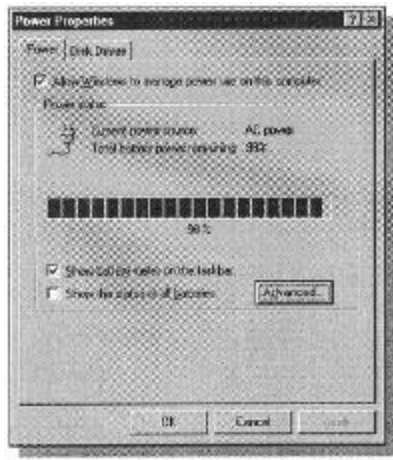
**Battery Status**

Windows 95 and Windows 98 has an applet in the Control Panel that will display an icon in the Windows taskbar indicating when the Notebook is running on battery power or is attached to the AC adapter. This applet also displays a meter that indicates how much charge is remaining in the battery.

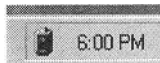
**For Windows 95**

To open this program click on **Start**, then **Settings**. Click the **C**ontrol Panel icon.

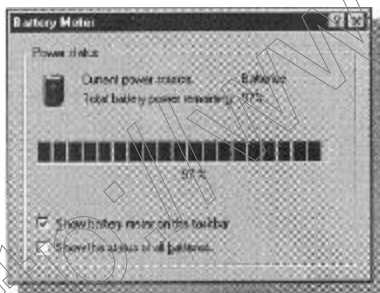
In the Control Panel, double click the Power icon. The screen will display the illustration shown on the right:



Click the box next to **Show battery meter on the taskbar** to have the power icons displayed on the Windows taskbar.



When the AC plug is displayed, it indicates that the AC adapter is attached to the Notebook.  
When the battery icon is displayed, it indicates that the Notebook is running on battery power.  
Double click the battery icon to display the following screen:



This screen indicates how much battery charge remains.

## For Windows 98

In the "Control Panel", double click the "Power Management" icon to display the "Power Management Properties" as shown on the right screen.



## Power Scheme

- Home/Office Desk
- Portable/Laptop
- Always On

In setting your power options, click on the "Power Scheme" tab to select the power scheme most appropriate for you in using your computer.

## Settings for Portable/Laptop power scheme

Under this item you are allowed to set the time setting for the system to enter the standby mode whether you are operating the system by battery or AC power source.

### Turn off monitor

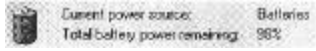
Under this item, you are allowed to set the time setting to turn off the monitor whether you are operating the system by battery or AC power source.

### Turn off hard disks

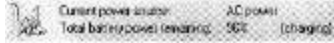
Under this item, you are also allowed to set the time setting to turn off the hard disks either operated by battery or AC power source.

## Power Meter

Click on the "Power Meter" tab to display the type of power source you are using to operate your notebook computer.



This indicates the Notebook is operated with battery.



This indicates the Notebook is operated with an AC power source.

If the battery charge drops below a certain voltage level, a beeping sound will prompt you to save your work and turn off the computer, or connect the AC adapter. The message is:

You should change your battery or switch to outlet power immediately to keep from losing your work.

### Battery Low Warning

When the pack initially reaches the "Battery Low" state approximately 10 - 15 minutes of the usable battery life is left.

You will hear an audible beep signal every 1.5 seconds alerting you to the "Battery Low" status. When the battery power reaches the "Battery Low Low" status the beeping sound will accelerate.

Your battery now has 1 - 2 minutes of battery charge remaining. You must save your data or connect AC power immediately; otherwise, you may lose your data.

**Note:** The Notebook can not be powered on while the battery is in the "Battery Low" state: to power the Notebook on the battery pack has reached the "Battery Low" state, the AC adapter must be connected.



### Sound

Continuous beeping every 1.5 seconds

### Meaning

**Battery Low:** Indicates that there is 10 to 15 minutes charge remaining.

Beeping accelerates

**Battery Low Low:** Indicates that there is 1 to 2 minutes of battery charge remaining. Save your work and turn off the Notebook, or connect the AC adapter.

When there is only one minute of battery charge remaining, the Notebook will suspend to the HDD (if a PHDISK HDD partition has been set) and power off. If a PHDISK HDD partition has not been set the Notebook will suspend to DRAM. You should connect AC power and resume to save your work.

Windows 95 OSR/2 has a Smart Battery function that allows you to change the settings for the battery warning signals. Please consult the Windows 95 OSR/2 help for details.

To extend battery power, we recommend that you make full use of the Notebook's built-in power saving features.

### **Small Battery for the Real TimeClock**

There is a small built-in battery pack that supplies power to the system in order to maintain certain system information while the power is off.

If the Notebook is left without a power source for too long, this battery will be exhausted and system information will be lost. Please avoid this condition by ensuring that the Notebook never remains without a power source for more than ten days.

**Warning -** Never remove the battery pack while the power is on as this may result in data loss when the system loses

## Power Management Modes

The computer has a number of automatic or adjustable power saving features which you can use to maximize battery life. You can control some of these features through the Power menu in the Setup program. Refer to Chapter Five for a detailed description of the BIOS Setup program.

The computer is made up of electronic components, all of which consume electricity to operate. Yet, some components consume much more than others. The power management features are designed to save as much electricity as possible by putting these components into a low power consumption mode as often as possible.

These low power modes are referred to as "Standby" mode and "Suspend" mode. Standby mode is also commonly known as System Sleep mode.

### Full Power Mode

The computer operates in Full Power mode when power management is disabled. When the computer is operating in Full Power Mode, the Power LED remains on.

If you are conscious of power consumption, you will probably rarely operate the computer with all power management features disabled.

### Standby Mode

In addition to reducing the CPU speed, this mode puts peripheral components in their lowest active states. These peripheral components include the hard disk, the LCD screen and the screen backlight.

The Notebook enters Standby mode when the system remains idle for a specified amount of time. Press any key to resume system operation.

### Suspend Mode

In Suspend mode the CPU power is turn off and most of the computer's peripheral components are put in their lowest active states. These include the hard disk and the LCD display. The computer enters Suspend when the system remains idle for a specified amount of time. Press the Power button to resume system operation.

## A Suspend Example

The time out settings for Hard Disk Off, System Standby, and System Suspend specify the amount of time the system must be inactive before the next power management level is enabled. Refer to Chapter Five, **The Power Menu**. The example below demonstrates this function.

If the Hard Disk Timeout is set to 2 minutes, the Standby Timeout to 8 minutes and Auto Suspend Timeout is set to 10 minutes the following power management events take place:

1. After 2 minutes of system inactivity the hard disk spins down.
2. After 6 additional minutes (a total of 8 minutes of inactivity) the system enters Standby.
3. After 10 additional minutes in the system Standby mode, the system suspends to memory or disk.

After the system has suspended, operation can be returned (resumed) to the point in your application where it was suspended.

## How to Suspend

The system can be suspended in the following ways:

- System enters Auto Suspend. This is enabled by setting a time out period for the Auto Suspend field in the Power menu. This time out period is the amount of idle time that the system allows before a Suspend is initiated.
- System suspends to hard disk when battery level is critically low. A PHDISK partition must be created on your hard drive to enable this feature. Refer to Chapter Seven for details.
- Pressing and holding the power button for 1 second.

**Warning:** POWER.EXE must be loaded in a DEVICE = line in your CONFIG.SYS for APM (Advanced Power Management) to work correctly while under DOS or Windows 3.x. Failure to use POWER.EXE could cause the Notebook to become unstable or crash during SUSPEND/RESUME operations. POWER.EXE is necessary while running Windows 95™. For additional information refer to your DOS User's Manual.

## How to Resume

Pressing the power button causes the system to resume operation after entering the Suspend mode. Resuming returns the system's operation to the point in your application where the suspend mode was initiated.

This does not mean, however, that all devices are powered up. When the system resumes, the following events occur:

- DRAM refresh memory returns the system to the application that was running before the Suspend operation
- The video is turned on.
- The COM ports are enabled.
- Then, each device is powered on when it is requested for use by the system.

## Power Management Summary

The following table summarizes the Notebook's power-saving features:

<u>Power Mode</u>	<u>How to Enter Mode</u>	<u>How to Reactivate</u>
System Idle	Transits automatically	Press any key, Access HDD
System Standby	Transits automatically after specified time out	Press any key
System Suspend (Suspend to Disk or Suspend to RAM)	Transits automatically after specified time out. Press Power button. Battery low state.	Press the Power button
Hard Disk spin down	Transits automatically after specified time out	Access HDD

## The APM Interface

In addition to the power saving features built into the resident BIOS System Configuration Utility, your Notebook computer also supports the Intel-Microsoft Advanced Power Management.

APM is a cooperative interface that enhances the Notebook's built-in power management features by providing one of the most accurate schemes for detecting true idle.

This allows APM implementation to put the CPU in a lower power state with no loss in user performance.

If APM is installed and properly configured, and power management is enabled in the Setup program, APM functions in the following manner:

- Takes over power management from system BIOS
- Constantly monitors all system activity to provide one of the most accurate detection schemes for determining true idle under DOS, Windows, and OS/2
- Accounts for operating system inactivity and power demands
- Accounts for application inactivity and power demands
- Allows application programs, DOS, and BIOS to share power management features to ensure more efficient use of power
- Determines when power-saving features should be activated
- Operates transparent to the user (behind the scenes)

While you are running an APM aware application, APM will detect any system inactivity. If APM detects that either the operating system or the application is waiting for input (or is in some other idle state); APM will reduce the CPU to minimum speed. Once high speed is required again, APM will increase the CPU to maximum speed. With APM constantly monitoring all system activity, accounting for the Notebook's power consumption, and controlling all power-saving features, you will realize significant additional power savings.

# Chapter 4

## Connecting Peripheral Devices

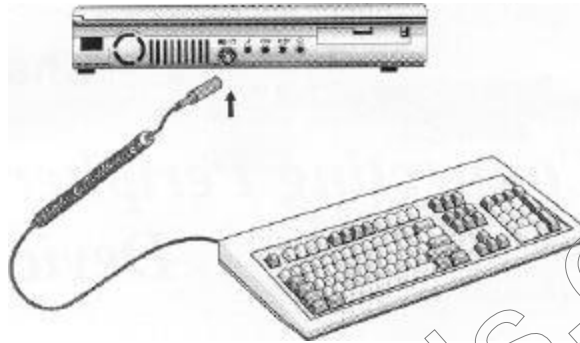
To expand your computing capabilities, you can add a variety of external devices to your computer. You may, for example, want to add a mouse, modem, or a printer. The computer is equipped with several interface ports, including an enhanced parallel (printer) port, a serial port, and two USB ports. These are provided as a means of connecting peripheral devices to the computer. Connect peripheral devices to the computer's interface ports as described below.

### External Keyboard/Numeric Keypad

You can use your Notebook computer with an optional external keyboard, numeric keypad, or IBM PS/2 compatible mouse. The devices are "hot pluggable". You do not have to power down the Notebook to connect these devices.

To connect an external keyboard to your computer:

1. Place the keyboard at the front of the computer or in another location appropriate for typing.
2. Plug the keyboard cable connector into the PS/2 keyboard socket on the left side of the computer.



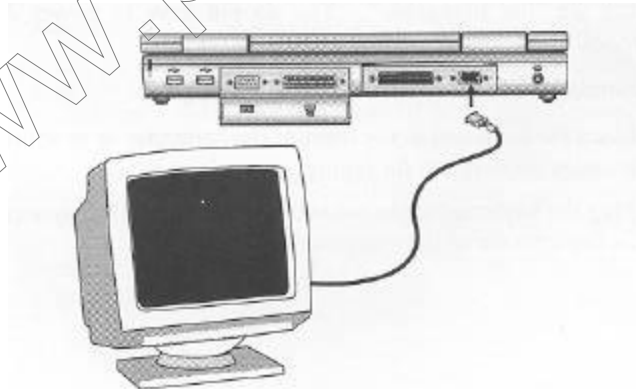
To connect a PS/2 compatible mouse to your computer:

1. Plug the PS/2 mini-din connector into the keyboard/mouse socket on the left of the computer.
2. The mouse works immediately after being plugged in. Additionally it can be used with the internal TouchPad or Stickpoint.

### External Monitor

You can use an optional external VGA/SVGA display monitor with your computer.

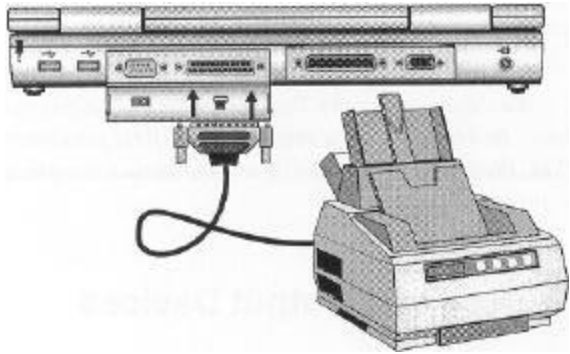
1. Plug the monitor's signal connector into the external monitor port on the rear panel of the computer. Secure the screws on the connector.



2. Plug the monitor's power cable into a wall outlet.
3. Before you turn on the monitor, turn on your computer and use the System Setup to designate the screen(s) that you want to use.

## Parallel Printer

Your Notebook computer is equipped with an enhanced bi-directional parallel port. Use the parallel port to connect the computer to a printer or plotter.



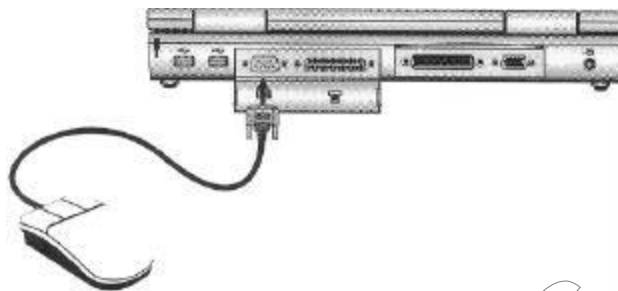
## Serial Devices

The rear panel of the Notebook computer has a standard RS-232C serial interface port. It is used to connect a peripheral device that can both input data to the computer and receive data from the computer.

The serial port is designated as COMA. The COM port designation is a conventional way to tell your software which I/O (input/output) address to use in order to send and receive data.

These I/O addresses are defined by IBM in their Technical Reference manuals, and are understood by all popular software manufacturers.





After you connect a peripheral device to the serial port, secure the two small screws on the connector.

**Note:** You cannot use the TouchPad with a serial mouse at the same time. In order to use a serial mouse, first disable the TouchPad, then enable and configure the mouse as specified by the manufacturer.

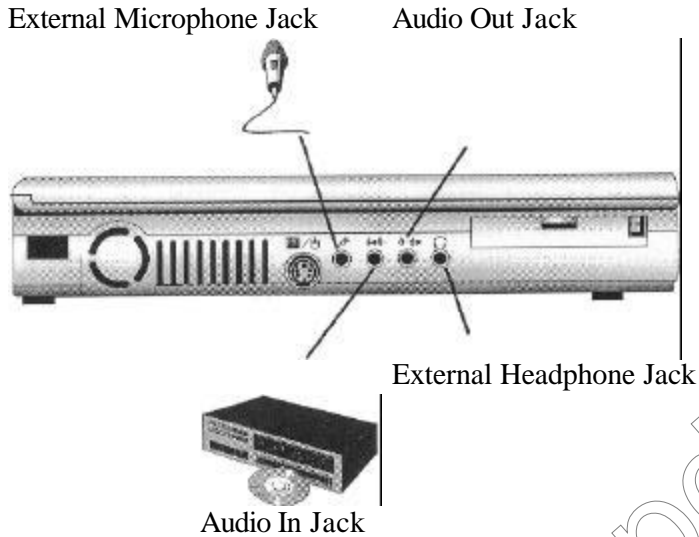
### Audio Sources and Output Devices

The built-in audio features of your Notebook let you record and play back sound from a variety of sources. These features include:

- PCI stereo sound that supports Microsoft Windows, Microsoft Sound System, and most programs that use the SoundBlaster Pro standard.
- The ability to perform real-time recording with compression and decompression.
- Scalable sampling rate (from 4 to 48 kHz) and compression ratios that give complete control of record time to required storage ratio.
- 3-D positional audio DirectX™ 5.0
- Digitally controlled volume with muting.
- Auxiliary line-in and speaker line-out for maximum flexibility.
- Built-in microphone and speaker to enhance portability.

To adjust the volume of your internal speakers or speakers attached to the stereo speaker port, use the volume controls found in your application or in the Windows Volume Control accessory.

Your computer comes with several software utilities and programs already installed. Among these is a group of programs that let you control the computer's various audio capabilities. For more information on these utilities and programs, see Chapter Six.



### Port Replicator

You may optionally purchase a port replicator for your Notebook computer. Rather than having to detach all your devices every time you take your Notebook computer with you, and then reattach them when you come back, all the devices connect to the port replicator, which you then connect to your computer through a single port.

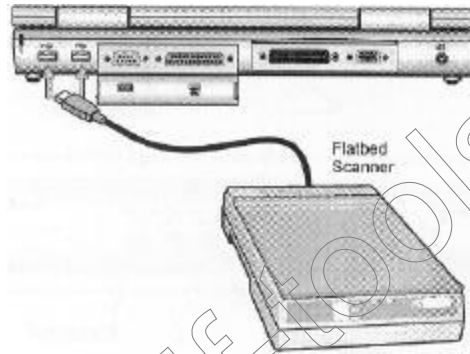
See your dealer for more information about the optional port replicator.

### USB Device

You may optionally purchase a USB (Universal Serial Bus) for your Notebook computer. USB devices such as mice, keyboards, and monitors are becoming more widespread throughout the Computer Industry.

The USB bus has a total bandwidth of 1.5MB per second. Up to 127 devices can be attached in a daisy chain fashion. For example, a USB keyboard or monitor could host several ports for additional devices.

It is expected to be used for devices such as the mouse, keyboard, printer and scanner.



See your dealer for more information about USB devices.

### TV Out

You can connect a TV monitor to the Notebook's S-Video port and view the Notebook's video output.



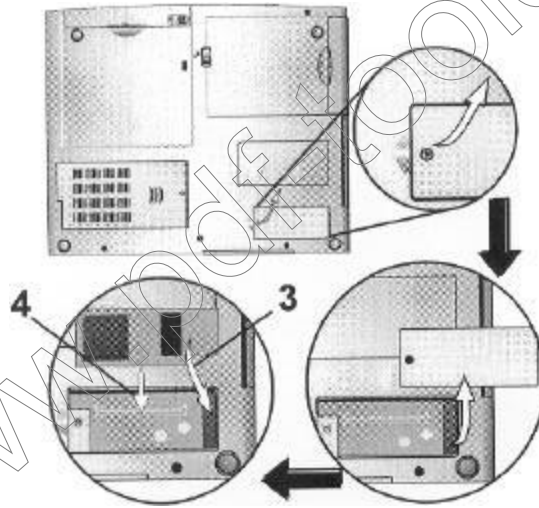
The TV Out port accommodates a Mini DIN type connector.

## Installing Optional Devices

The expansion card bay is located at the bottom of your Notebook. The following three expansion cards can be installed in this bay:

- Internal K56flex Fax/modem,
- MPEG-2 video compression module

1. Remove the Phillips screw from the expansion bay cover (1) and lift the cover free (2).
2. Position the expansion card so the expansion card connector is facing down.



3. Insert the expansion card under the Notebook casing (3) and then push down on the card so its connector mates with the mainboard connector (4).
4. Replace the expansion bay cover and secure it with the screw you removed at Step 1.

**Note:** Before installing the Fax/Modem card you must first remove the RJ11 connector cover, from the right side of the Notebook.

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<http://www.pdf-tools.com>

# Chapter 5

## Running BIOS Setup

### Introduction

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to reflect installed hardware or alter system performance.

It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery backed-up CMOS RAM which retains this information even when the power is turned off.

When the Notebook is turned back on, the system is configured with the values stored in CMOS. With easy-to-use menus, you can configure such items as:

- Hard drives and peripherals
- Bootup Drive Sequence
- Password protection
- Power Management Features

The settings made in the BIOS Setup program intimately affect how the Notebook performs. It is important, therefore, to first try to understand all the Setup options, and second, to make settings appropriate for the way you use the Notebook.

## Navigating through BIOS Setup

The Setup program has been designed to make it as easy to use as possible. It is a menu driven program, which means you can scroll through the various sub-menus and make your selections among the various predetermined choices. If you accidentally make a setting and don't know which one to switch back to, the Setup program has a hot key that allows you to return to the previous value. The hot keys are discussed in more detail later in this chapter.

You should run the Setup program under the following conditions:

- You have set up the computer for the first time and you get a message prompting you to run the BIOS Setup program
- You want to configure the Notebook to use a different booting device
- You want to reset the system clock
- You want to redefine the communication ports to prevent any conflicts
- You want to make changes to the Power Management configuration
- You want to change the password or make other changes to the security Setup

**Note:** The above items are only a few examples and are by no means a complete list.

### Accessing the BIOS Setup Program

To access the BIOS Setup program, press the F2 key after the Notebook has run through its POST.

### Item Specific Help

On the right side of the Setup screen is an area labeled Item Specific Help. This area will list navigation key shortcuts and information that is specific for the item that you are currently editing.

## The Menu Bar

The top of the screen has a menu bar with the following selections:

**Main** - Use this menu to make changes to the basic system configuration.

**Advanced** - Use this menu to enable and make changes to the advanced features available on your system, such as enabling the FIR module.

**Security** - Use this menu to set a password. The password allows bootup and controls access to the BIOS setup menu.

**Power** - Use this menu to configure and enable Power Management features.

**Boot** - Use this menu to configure the default system device used to locate and load the Operating System and for booting up the Notebook.

**Exit** - Use this menu to exit the current menu or specify how to exit the Setup program.

To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted.

## The Legend Bar

At the bottom of the Setup screen you will notice a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists the keys found in the legend bar with their corresponding alternates and functions.



<u>Legend Key</u>	<u>Alt Key</u>	<u>Function</u>
F1	Alt + H	Displays the General Help window. It can be enabled from anywhere in the BIOS.
Esc	Alt + X	Jumps to the Exit menu or returns to the Main menu from a submenu.
Keypad arrow keys		Selects the menu item to the left, Selects the menu item to the right, or moves the cursor up and down between the fields.
Tab	Enter	Moves the cursor to the next position available in the field.
Shift + Tab		Moves the cursor to previous position available in the field.
Minus key (-)	F5	Scrolls backward through the values for the highlighted field.
Plus key (+)	F6, Space	Scrolls forward through the values for the highlighted field.
Home	PgUp	Moves the cursor to the field at the top of the window.
End	PgDn	Moves the cursor to the field at the bottom of the window.
F9		Sets the parameters for the current menu to their default values.
F10		Sets the parameters for the current menu to their previous values.
Enter		Will select a sub menu or show a range of options for a field.

### Launching Submenus

Note that a right pointer symbol appears to the left of certain fields. This pointer indicates that a submenu can be launched from this field. A submenu contains additional options for a field parameter. To call up a submenu, simply move the cursor to highlight the field and press the [Enter] key.

The submenu will immediately appear. Use the legend keys to enter values and move from field to field within a submenu just as you would within a menu. Use the [Esc] key to return to the Main menu.

Take some time to familiarize yourself with each of the legend keys and their corresponding functions. Practice navigating through the various menus and submenus. If you accidentally make unwanted changes to any of the fields, use the "Set Default" hot key [F9].

While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field.

### General Help

In addition to the Item Specific Help window, the BIOS Setup program also provides a General Help screen. This screen can be called up from any menu by simply pressing [F1] or the [Alt] + [H] combination. The General Help screen lists the legend keys with their corresponding alternates and functions.

When a scroll bar appears to the right of a help window, this indicates that there is more information to be displayed that won't fit in the window. Use the [PgUp] and [PgDn] keys or the up and down arrow keys to scroll through the entire help document.

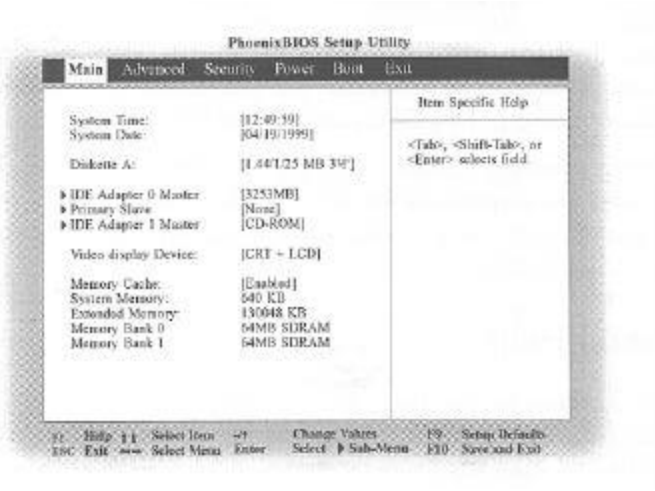
Press the Home key to display the first page, press End to go to the last page. To exit the help window, press the [Enter] or the [Esc] key.

### Save Changes and Exit the Setup Program

Refer to the Exit menu section of this chapter for detailed information on saving changes and exiting the setup program.

# The Main Menu

When the Setup program is accessed, the following screen appears:



This is the Main menu of the BIOS Setup program. Changes to the Notebook's basic system configuration can be made from this menu. Each of the fields displayed in this menu are covered below in detail.

## System Time

Sets your system to the time that you specify (usually the current time). The format is hour, minute, second. Insert the appropriate information. Use the [Tab] or [Shift] + [Tab] keys to move between the hour, minute, and second fields.

## System Date

Sets your system to the date that you specify (usually the current date). The format is month, day, year. Type in the appropriate information. Use the [Tab] or [Shift] + [Tab] keys to move between the month, day, and year fields.

## Diskette A

Specifies a drive type for diskette drive A. Drive A is the factory- included floppy disk drive. Valid configurations are:

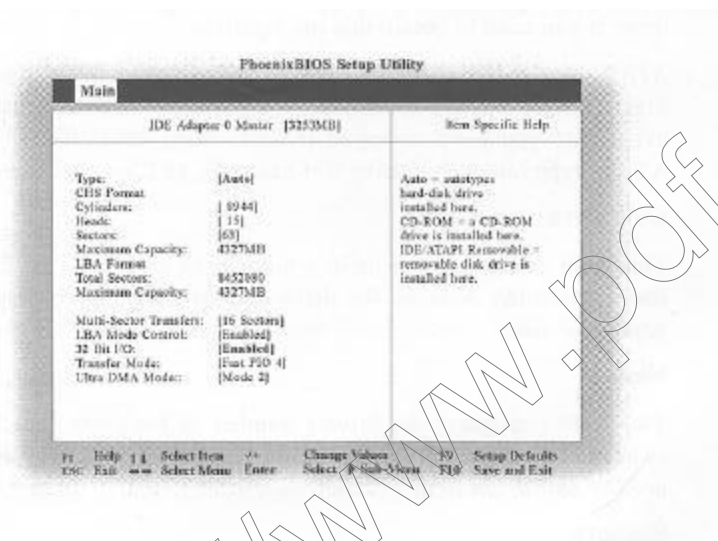
- Disabled
- 1.44/1.25 MB 3 1/2" (default value)

### IDE Adapter 0 Master

This field is used to configure the IDE Hard Disk installed in the system. To configure a hard disk drive, move the cursor to highlight the IDE Adapter 0 Master field:

IDE Adapter 0 Master [3253MB]

Pressing the [Enter] key at this point will reveal the IDE Adapter 0 Master submenu:



**Note:** Before attempting to configure a hard disk drive, make sure you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can result in your system not recognizing the installed hard disk.

### Type

The following options are available for this field:

- Auto (default value)

- None

Select **Auto** to automatically configure an IDE type drive. This option only works with standard IDE drives. If your drive is an IDE type, it will be automatically recognized and properly configured.

If automatic detection is successful, the correct values will be filled in for the remaining fields on this submenu. If no drive is installed or if you are removing a drive and not replacing it, select **None**.

**CD-ROM** if a CD-ROM is installed as the IDE Adapter 0 Master.

To configure a drive that is not an IDE type drive, if it is **User**. Manually enter the number of cylinders, heads and sectors per track for your drive. Refer to your drive's documentation or look on the drive if you need to obtain this information.

**ATAPI Removable** if the drive is an ATAPI type drive that supports high-capacity storage diskettes. This option would be used in the event that you have swapped the CD-ROM or DVD-ROM for an ATAPI type removable drive (for example, an LS-120 drive).

### Cylinders

This field configures the drive's number of cylinders. If the system has successfully detected the drive automatically, there is no need to adjust this field.

### Heads

This field configures the drive's number of read/write heads. If the system has successfully detected the drive automatically, there is no need to adjust this field.

### Sectors

This field configures the drive's number of sectors per track. If the system has successfully detected the drive automatically, there is no need to adjust this field.

### Maximum Capacity

This field gives the maximum formatted capacity of the hard disk drive. This is a display only field.

## Multi -Sector Transfers

This option automatically sets the number of sectors per block to the highest number supported by the drive.

This field can also be configured manually. Note that when this field is automatically configured, the set value may not always be the fastest value for the drive.

Refer to the documentation that came with your hard drive to determine the optimal value and set it manually. Set the Type field to **Auto** to provide the optimum transfer mode. Configurations are:

- Disabled
- 2 Sectors
- 4 Sectors
- 8 Sectors
- 16 Sectors (default value)

## LBA (Logical Block Access) Mode Control

When enabled, this option uses 28-bit addressing of the hard drive without regard for cylinders, heads, and sectors. Note that Logical Block Access may decrease the access speed of the hard disk.

However, LBA Mode is necessary to use drives with greater than 528MB in storage capacity. Set the Type field to **Auto** to provide the optimum transfer mode. Configurations are:

- Disabled
- Enabled (default value)

## 32 Bit I/O

When enabled, this option speeds up communication between the CPU and the IDE controller. This option supports PCI local bus only. ISA bus is not supported. Set the Type field to **Auto** to provide the optimum transfer mode. Configuration options are:

- Disabled
- Enabled (default value)

## Transfer Mode

When enabled, this option speeds up communication between the system and the IDE controller by using enhanced 1/0 transfer modes (PTO Modes). Set the Type field to **Auto** to provide the optimum transfer mode. Configurations are:

- Standard
- Fast PTO 1
- Fast PTO 2
- Fast PTO 3
- Fast PTO 4 (default value)

## Ultra DMA Mode

When enabled, this option speeds up data transfer to and from the drive. In order to make changes to this field, the Type field must be set to **User**. Set the Type field to **Auto** to provide the optimum transfer mode. Configurations are:

- Disabled
- Mode 0
- Mode 1
- Mode 2 (default value)

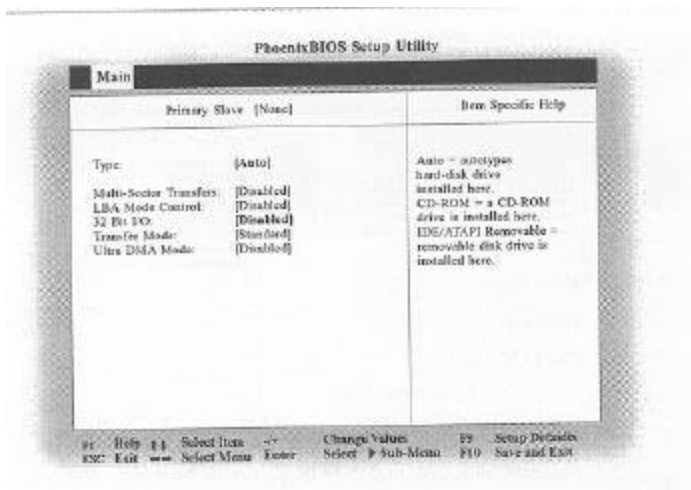
After using the legend keys to make changes to this submenu, press the [Esc] key to exit back to the Main menu.

## Primary Slave

The number value in this field indicates the size of your Notebook's Primary Slave Hard Drive. The arrow head icon indicates that this field contains a submenu. The submenu is used to configure an IDE Hard Disk installed in the system.

To configure a hard disk drive, move the cursor to highlight the **Primary Slave** field, and press the [Enter] key. The **Primary Slave** submenu screen will appear. When a Slave HDD is installed, the fields and options on this submenu will be the same as the **IDE Adapter 0 Master** submenu described above.

After using the legend keys to make changes to this submenu, press the [Esc] key to exit back to the Main menu.



## IDE Adapter 1 Master

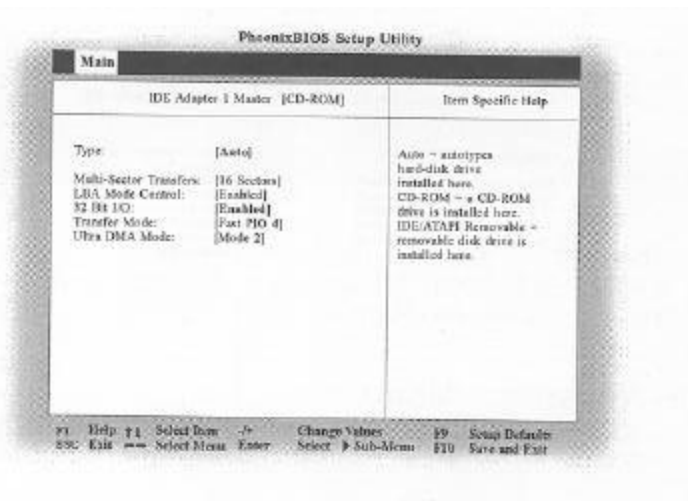
The value in this field indicates the size of your Notebook's IDE Adapter 1 Master Hard Drive or the presence of a CD-ROM or DVD- ROM drive. The arrow head icon indicates that this field contains a submenu.

The submenu is used to configure an IDE Hard Disk or CD- ROM/DVD-ROM installed in the system.

To configure a hard disk drive or CD-ROM/DVD-ROM, move the cursor to highlight the **IDE Adapter 1Master**field, and press the [Enter] key. The **IDE Adapter1 Master**submenu screen will appear. When the **Type**field is set to "Auto", only the **32 BitI/O** and **Ultra DMA Mode**fields are available. When set to "User" the fields and options on this submenu are the same as the **IDE Adapter 0 Master**submenu described above.

After using the legend keys to make your selections to this submenu, press the [Esc] key to exit back to the Main menu.





### Video Display Device

Allows you to choose the display mode. Setting this field to **Simul Mode** allows you to view the video output on the Notebook LCD panel and an external CRT. Configuration options are:

- LCD only
- CRT only
- CRT+LCD (default value)

### Memory Cache

Enables or disables the L2 memory cache. Enabling this will speed up Notebook operations. Configuration options are:

- Enabled (default value)
- Disabled

### System Memory

This field displays the amount of conventional memory detected by the system during boot-up. You do not need to make changes to this field. This is a display only field.

### Extended Memory

This field displays the amount of extended memory detected by the system during boot-up. You do not need to make changes to this field. This is a display only field.

### Memory Bank 0

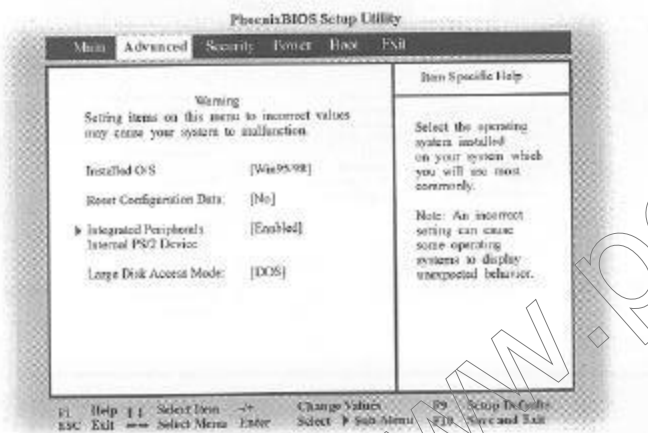
This field displays the amount of memory installed in the Memory Bank0 (even address). You do not need to make changes to this field. This is a display only field.

### Memory Bank 1

This field displays the amount of memory installed in the Memory Bank 1(odd address). You do not need to make changes to this field. This is a display only field.

### The AdvancedMenu

Selecting Advanced from the menu bar displays the Advanced menu:



### Installed O/S

This field allows you to enable the Plug and Play operating system to set up your hardware devices. Select Win95198if you are using a Plug and Play operating system such as Windows 95/98.

Select WinNT4.0if you are using a Plug and Play operating system such as Windows NT 4.0. Otherwise, select Others.

- WinNT 4.0

- Win95/98 (default value)
- Other

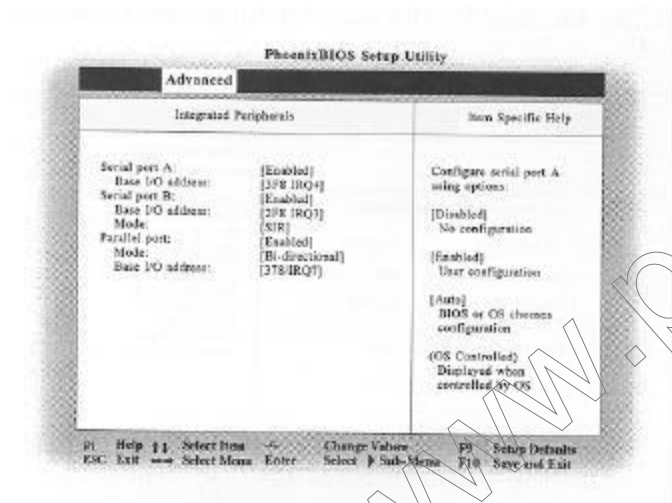
## Integrated Peripherals

### Internal PS/2Device

This field allows you to enable/disable the internal PS2 device of TouchPad.

- Enable (default value)
- Disable

Pressing the [Enter] key when this field is highlighted calls up the following submenu:



This menu allows you to configure the Notebook's serial and parallel ports. Each field on this submenu is covered below.

### Serial Port A

This field allows you to configure the Notebook's serial COM1 port. The following options are available:

- Disabled
- Enabled (default value)
- Auto

When **Enabled** is selected, the Base I/O Address menu item appears.

### Base I/O Address

Use this option to choose the I/O (port) address for the serial COM1 port. The available options are:

- 3F8 IRQ4 (default value)
- 2F8 IRQ3
- 3E8 IRQ4
- 2E8 IRQ3

### Serial Port B

This field allows you to configure the Notebook's serial COM2 port. The following options are available:

- Disabled
- Enabled (default value)
- Auto

When **Enabled** is selected, the Base I/O Address menu item and Mode item appear.

### Base I/O address

Use this option to choose the I/O (port) address for the serial COM2 port. The available options are:

- 3F8 IRQ4
- 2F8 IRQ3 (default value)
- 3E8 IRQ4
- 2E8 IRQ3

### Mode

This field allows you to enable or disable the Notebook's Fast Infrared (FIR) communication module. The following configuration options are available:

- SIR (default value)
- FIR

### Parallel Port

This field allows you to configure the Notebook's parallel port. The following options are available:

- Disabled

- Enabled (default value)
- Auto

Changing the default address and IRQ settings for COM1, COM2 and the LPT Port can cause conflicts with other system devices or installed peripherals.

## Mode

This field allows you to configure the Notebook's parallel port transmission mode. The following options are available:

- Output Only
- Bi-directional (default value)
- ECP
- EPP

Output Only mode allows data output but no data input. However, EPP and ECP are Bi-directional modes, allowing both data input and output. The EPP and ECP modes are only supported with EPP and ECP aware peripherals.

With the ECP mode, the port is software and hardware compatible with existing parallel ports so that it may be used as a standard printer mode if ECP is not required. ECP mode provides an automatic high burst-bandwidth channel that supports DMA for ECP in both the forward (host to peripheral) and reverse (peripheral to host) direction.

When the EPP mode is selected the standard and bidirectional modes are also available. The EPP operates on a two-phase cycle.

First the host selects the register within a device for subsequent operations. Second, the host performs a series of read and/or write byte operations to the selected register.

There are four operations supported by EPP: Address Write, Data Write, Address Read, and Data Read. All operations are performed asynchronously.

## Base I/O address

Use this option to choose the I/O (port) address for the Parallel port. The available options are:

- 378/IRQ7 (default value)
- 278/IRQ7

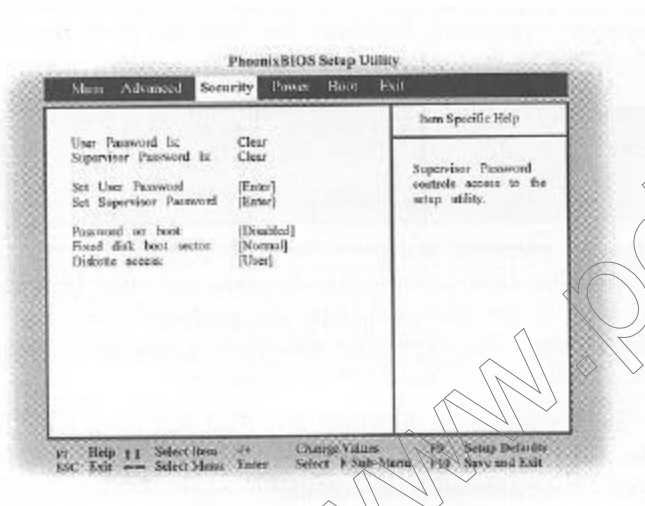
## • 3BC/IRQ7

This field is only available when the Parallel port field is set to **Enabled**.

### The Security Menu

The Notebook's advanced system of security allows you to set a password to prevent unauthorized access to system resources, data, and the BIOS Setup Program.

This section covers each parameter of the Security Setup. Selecting **Security** from the menu bar displays the following menu:



### A Note about Passwords

The BIOS Setup program allows you to specify passwords in the Security menu. The passwords control access to the BIOS and certain Security menu options during system startup.

The passwords are not case sensitive. In other words, a password can be entered using either upper or lower case letters; it makes no difference. If you forget your password, your system will have to be sent to the dealer to have it removed at your expense.

### User Password Is:

This field will show **Set** when you have set a User Password as described below. If you have not set the User Password, the field will show **Clear**. This is a display only field.

### Supervisor Password Is:

This field will show **Set** when you have set a Supervisor Password as described below. If you have not set the Supervisor Password, the field will show **Clear**. This is a display only field.

### Set Supervisor Password

This field allows you to set the Supervisor password. To set the Supervisor password, highlight this field and press the [Enter] key. The following dialog box appears:

Set Supervisor Password		
Enter New Password		
Confirm New Password		

Type the password and press the [Enter] key. You can type up to seven alphanumeric characters. Symbols and other keys are ignored. To confirm the password, type the password again and press the [Enter] key. The Supervisor password is now set. This password allows full access to the BIOS Setup menus.

To clear a password, highlight this field and press the [Enter] key. The same dialog box as above will appear. Press the [Enter] key twice. The password is now cleared.

### Set User Password

This field allows you to set the User password. To set the User password, follow the same instructions for setting the Supervisor password. The User password allows restricted access to the Setup menus. This password also requires that the Supervisor password be set prior to setting the User password.

### Password on Boot

This option requires prior setting of the Supervisor password to function. When enabled, the system will then require either the Supervisor or User password before the system can bootup.

The options for this field are:

- Disabled (default value)
- Enabled

### Fixed Disk Boot Sector

This option requires prior setting of the **Supervisor** password to function. When set to **Normal**, the system will allow normal access to the HDD boot sector. When set to **Write Protect**, the BIOS blocks all accesses to the boot sector. The options for this field are:

- Normal (default value)
- Write Protect

**Note:** Write protecting the HDD boot sector will protect the HDD against boot sector viruses. However, this option may interfere with the normal operation of certain operating systems or ~~and~~ programs, which would normally need access to the boot sector area.

### Diskette Access

This option requires prior setting of the **Supervisor** password to function. When set to **User**, the system will then require either the **Supervisor** or **User** password before allowing access to the Floppy Disk Drive (FDD). When set to **Supervisor**, only the **Supervisor** password will allow access to the FDD. The options for this field are:

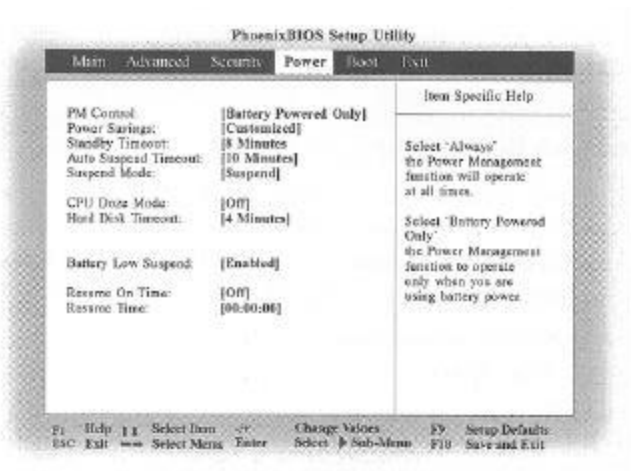
- User (default value)
- Supervisor

### The Power Menu

The Power menu allows you to enable and adjust the Notebook's advanced power saving features. Enabling these features will extend the life of the battery pack between charges.

To make changes to Power Management settings, select **Power** from the menu bar. The following menu appears.





## PM Control

This field allows you to choose the Power Management mode. You can set Power Management to operate at all times or only when you are using battery power. The options for this field are:

- Always
- Battery Powered Only (default value)

## Power Savings

This option must be enabled to use any of the automatic power saving features. The options for this field are:

- Disabled (default value)
- Customized
- Maximum Power Savings
- Maximum Performance

If this menu item is set to **Disabled**, Power Management features will not function regardless of other field settings on the Power menu.

The **Customized** option allows you to make your selections from the following fields within the Power Menu.

When set to **Maximum Power Savings**, system power will be conserved to its greatest amount.

The remaining fields within the Power Menu will be set to pre-defined values that ensure maximum power savings.

When this field is specified as **Maximum Performance**, best system performance is achieved with some power conservation. The remaining fields within the Power Menu will be set to pre-defined values that ensure maximum power savings.

### Standby Timeout

This field allows you to specify how much time of inactivity must elapse before the system automatically transits to Standby mode. In Standby mode all devices are powered off and the system enters a low power CPU state. Available options for this field are:

- Disabled (default value)
- 1 Minute
- 2 Minutes
- 4 Minutes
- 6 Minutes
- 8 Minutes (default value)
- 12 Minutes
- 16 Minutes

If APM is installed, this function will be controlled by APM and may function differently depending on the APM settings.

### Auto Suspend Timeout

This field determines how much system idle time must pass before the system enters Suspend mode. When set to Off, the system cannot enter Suspend mode which is the lowest power state for the Notebook. The possible settings for this field are as follows:

- Disabled (default value)
- 5 Minutes
- 10 Minutes (default value)
- 15 Minutes
- 20 Minutes
- 30 Minutes
- 40 Minutes
- 60 Minutes

### Suspend Mode

This field determines whether the Notebook will save its CPU status and Suspend to its lowest power consumption mode or Suspend to disk and power off. Available options for this field are:

- Suspend (default value)
- Save To Disk

### CPU Doze Mode

This field allows you to enable or disable CPU idle mode power savings. When enabled, the CPU will slow down during periods when the system is not busy. The possible settings for this field are as follows:

- Off (default value)
- On

### Hard Disk Timeout

This field allows you to specify the period of inactivity required before the hard disk spins down and enters the Standby (motor off) state. The possible options for this field are:

- Disabled
- 1 Minute
- 2 Minutes
- 4 Minutes (default value)
- 6 Minutes
- 8 Minutes
- 10 Minutes
- 15 Minutes
- 20 Minutes

### Battery Low Suspend

When set to **Enabled**, suspends to disk when the battery charge is in a low low state. Possible options for this field are:

- Enabled (default value)
- Disabled

## Resume On Time

This option allows you to enable the system to resume at specific time. The possible options are:

- Off (default value)
- On

If you set this field to **ON**, you must also set the **Resume Time** field.

## Resume Time

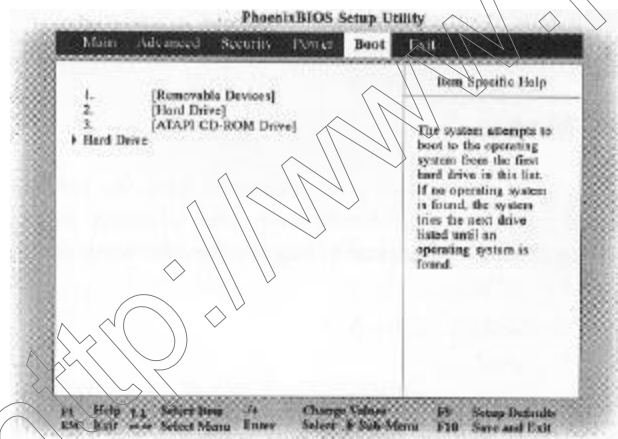
This option allows you to specify the time the system will resume.

The Resume On Time field must be set to **On** for the settings in this field to function. Enter the time in hours, minutes and seconds in a 24-hour format.

For example, indicate that the system should resume normal operation at 1:00 PM by setting this field with a value of 13:00 hours.

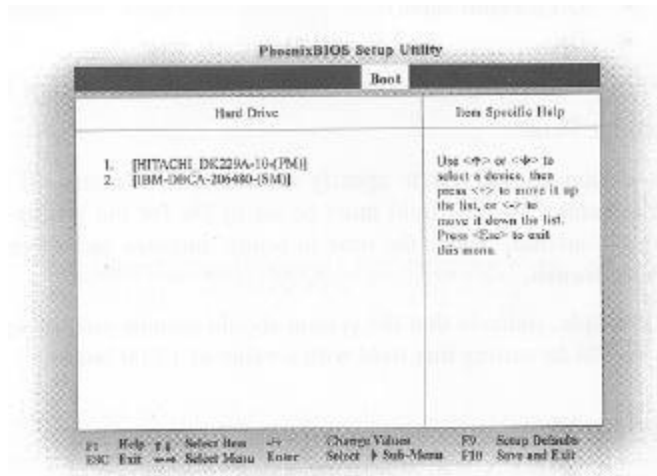
## The Boot Menu

The Boot menu allows the user to specify the order in which the Notebook is to check for a device to boot the system. You can also configure the way that the system will boot up. To make changes, select **BOOT** from the menu bar. The following screen appears:



## Hard Drive

This field allows the system to boot to the operating system from the first hard drive available in the system.

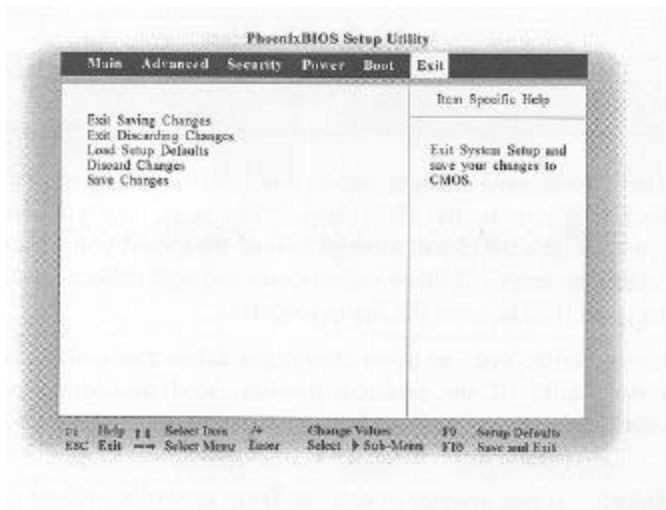


Use the up and down arrows to select the boot device. Then press either the plus key [+] to move the device up the list or the minus key [-] to move the device down the list.

After you have made your changes to the Boot Device Priority menu, press [Esc] to exit to the Boot menu.

## The Exit Menu

Once you have made all of your selections from the various menus in the Setup program, you should save your changes and exit Setup. Select **Exit** from the menu bar to display the following menu:



Note: Pressing the [Esc] key does not exit this menu. You must select one of the options in this menu or a menu bar item to exit this menu.

Each of the options on this menu is described below.

### Exit Saving Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to Non-Volatile RAM.

Changes you made to the Setup program must be changed to Non-Volatile RAM in order to make them operative.

Non-Volatile RAM differs from standard RAM memory in that it is sustained by an on-board battery even when the Notebook is turned off. Once this option is selected, the Setup program displays the following message:

## Setup Confirmation

Save configuration changes and exit now?  
[Yes] [No]

Select **Yes** to save changes and exit the BIOS setup program or press [Esc] to return to the Exit menu. The next time you boot-up the Notebook, the BIOS will attempt to load the values you saved in Non-Volatile memory. If these values cause the system boot to fail, reboot and press [F2] to enter the Setup program.

Once in Setup, you can try to change the values that caused the system boot to fail. If the problem persists, load the default values as described below.

**Note:** If you attempt to exit the Setup program without saving changes, the program will prompt you with a message asking if you want to save your changes before exiting.

### Exit Discarding Changes

This option should only be used if you do not want to save the changes you have made to the Setup program. If you have made changes to the fields other than system date, system time and password, the system will ask for confirmation when choosing Exit Discarding Changes.

Warning  
Configuration has not been saved!  
Save before exiting?  
[Yes] [No]

Select **Yes** to save changes and exit the BIOS setup program, select **No** to exit BIOS without saving your changes, or press [Esc] to return to the Exit menu.

### Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When this option is selected, the following message is displayed:

Setup Confirmation  
Load default configuration now?  
[Yes] [No]

Select **Yes** to load default values. You can now select Exit Saving Changes or make other changes before saving the values to Non-Volatile RAM.

### Discard Changes

This option allows you to discard the selections you've made and restore the values you previously saved. After selecting this option, all selections are updated, and the following message is displayed:

Setup Confirmation  
Load previous configuration now?  
[Yes] [No]

Select **Yes** to discard any changes and load the previously saved values.

### Save Changes

This option saves your selections without exiting the Setup program. You can then return to other menus and make changes. After selecting this option, all selections are saved, and the following message is displayed:

Setup Confirmation  
Save configuration changes now?  
[Yes] [No]

Select **Yes** to save any changes to Non-Volatile RAM. To exit the BIOS Setup program, open the Exit menu and select one of the exit options.

Note: To exit BIOS Setup without saving your changes, select Exit Discarding Changes in the Exit menu and press [Enter]. When prompted by BIOS to save your changes before exiting, select [No] and press [Enter].



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# Chapter 6

## The Software Utilities Disks

### Installing Software Drivers in Windows 98

Windows 98 automatically installs and configures your hardware drivers. If you need to reinstall the driver for some reason, please refer to the corresponding driver installation procedure in the following Windows 95 section. Although there are some slight differences in the interface, you will be able to intuitively follow the same procedures for Windows 98.

### Installing the CD-ROM/DVD Driver

#### DOS Installation

If you are going to install Windows 95 from the CD-ROM, you will first need to ensure that the CD-ROM driver is installed. This section takes you through the installation of the Notebook's Toshiba CD-ROM driver for DOS.

### Installing the Toshiba CD-ROM/DVD Driver

To install the CD-ROM and Digital Versatile Disk (DVD) driver for the Toshiba CD-ROM or DVD, please follow these steps:

1. At the DOS prompt, insert the Driver Utility Diskette into drive

2. At the DOS prompt change to drive A by typing "A:" and pressing [Enter] as follows:

C:\A: [Enter]

A:\

3. Type "INSTALL" and press [Enter].

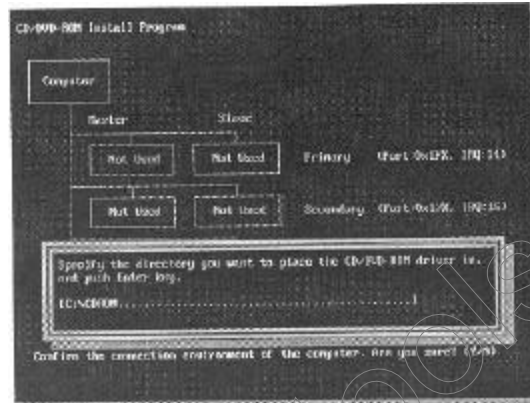
A:\INSTALL [Enter]

4. The Toshiba CD-ROM/DVD driver installation program will start.

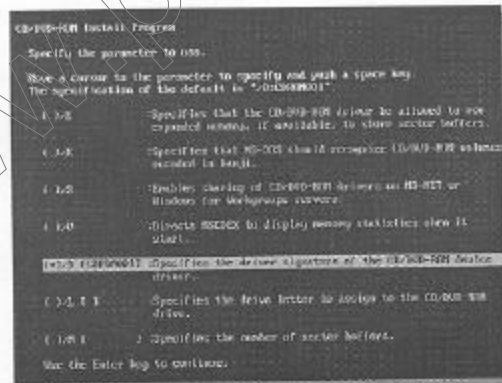
### The Toshiba CD-ROM/DVD Driver Installation Program

1. The first screen is an introduction to the CD-ROM/DVD installation program.
2. Press [Enter] to continue. The second screen prompts you to confirm the computer's environment settings.

3. Verify that the settings are correct and press [Enter].
4. The next screen asks you to specify the directory for the CD-ROM driver program files.



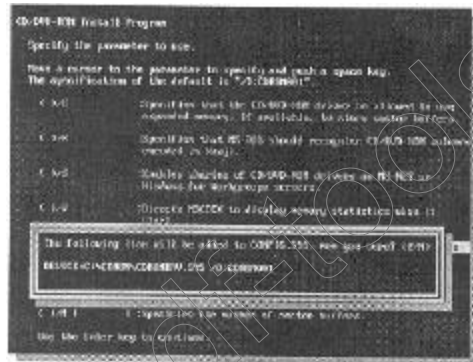
5. To accept the default directory location, press [Enter]. If you want to choose a different directory in which to install the CD-ROM program files, press [N]. Then use the backspace key to erase the default directory name. Type in a new directory name and press [Enter].
6. The next screen prompts you to specify the CD-ROM driver parameters.



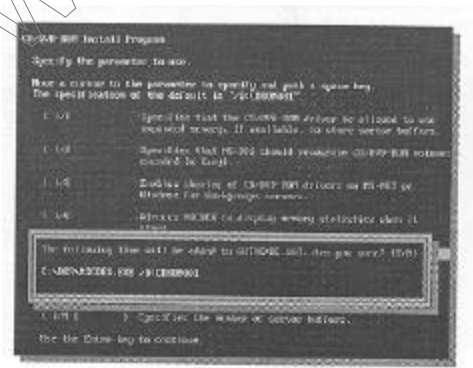
7. Move the highlight down to the default value  
"(\*)/D CDROM001" and press [Enter].

Note: Do not choose any of the other parameters. The CD-ROM driver will not operate using the other parameters listed in the illustration above.

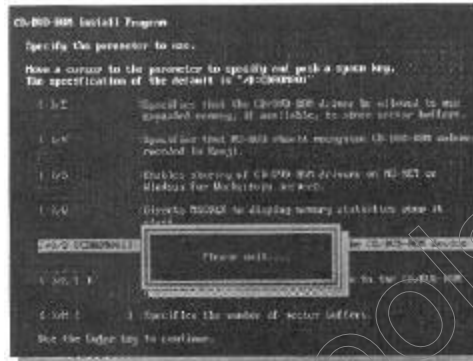
8. The next screen will prompt you to allow the setup program to add a line to the configuration system file (config.sys).



9. Press [Enter] to allow the installation program to add the line to the configuration system file.
10. The next screen will prompt you to allow the program to add a line to the automatically executed batch file (autoexec.bat).



11. Press [Enter] to allow the installation program to add the line to the autoexec.bat file.
12. The next screen asks you to wait for the installation program to finalize system settings.



13. When the installation program has finalized system settings, the following screen will appear:



14. Press [Enter] to quit the installation program and return to the DOS prompt. Restart the computer to enable the CD-ROM drive.

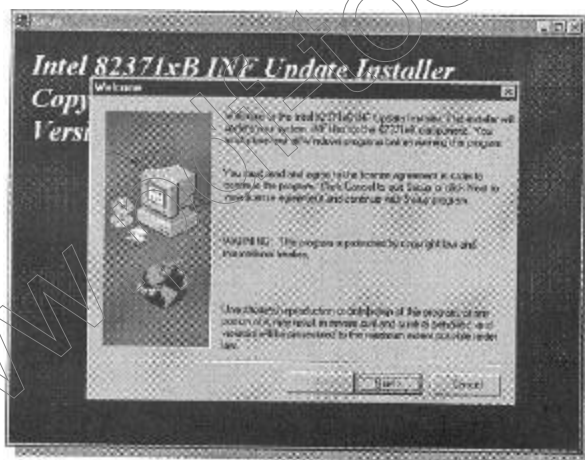
## Windows 95 Installation

Windows 95 automatically installs and configures plug and play hardware devices including your CD-ROM drive. You do not have to install the driver.

## Running the 430TX Patch File

### Windows 95 Installation

This utility program was developed for updating several Windows 95 INF files so that Intel 82371SB and 82S71AB components can be recognized or configured properly in the system. To run the utility, first insert the Driver Utility CD-ROM into the CD-ROM drive. In Windows click **Start, then Run**. In the **Open** box type "D:\win95\ide\setup" (where "D" is the letter of your CD-ROM drive). Click **OK**. The Install Shield Setup Wizard will start. You will then see the following screen:



Click **Next>**. Windows Notepad will display the Microsoft license for the 430TX patch file. Read the license and then close Notepad. Follow the instructions on the screen to complete the installation of the 430TX patch file.

At the end of the installation, the Setup program will restart your computer. Upon restarting, Windows may detect and install new hardware. You may be prompted to restart your machine again.

After Windows has restarted, please follow these instructions to verify that the INF files have been updated correctly:

1. Click the **Start** button, then go to **Settings** and click the **Control Panel** item to open the **Control Panel**.
2. Double click the **System** icon. Click the **Device Manager** tab.
3. Click the **View devices by type** radio button.
4. Click the "System devices" entry to view the following screen:



5. You should see one of the following entries:

Intel 82371AB/EB PCI to ISA bridge

6. If you see "PCI standard ISA" bridge you should restart the system and rerun the 430TX software.

**Note:** You should run the 430X Patch file before installing any drivers in Windows to ensure that the software will be correctly configured.



## VGA Display Drivers

This section describes the operation and installation of VGA display software drivers supplied on the Driver Utility CD-ROM that is shipped with your computer.

## Software Drivers

The purpose of the provided software drivers is to take advantage of the extended features of the computer's VGA circuitry. These capabilities include:

- First mobile accelerator to use AGP 2X (133MHz) in AGP Texturing with sideband signals to realize all the benefits of AGP.
- First mobile accelerator to use Tri-View architecture for a triple display solution allowing three simultaneous outputs to TV, CRT and LCD with up to two different refresh rates.
- First mobile accelerator to deliver full motion soft DVD using motion compensation circuitry.
- Innovative Dynamic Power Management with ACPI compliance.
- Superior 3D performance achieved through a hardware setup engine and a 4KB on-chip texture cache.
- Superior 2D performance with support of 100MHZ SGRAM
- TFT and DSTN panel interface support for up to 1280x 1024 resolutions.
- High quality ratiometric expansion that fits source images to any panel resolution.
- AGP and PCI versions of the chip available in 2 package options.

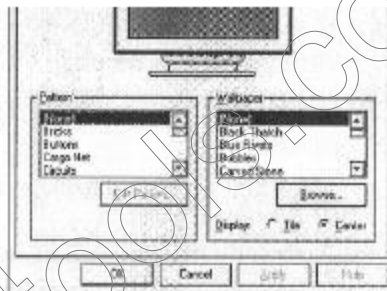
## Installation using Windows 95

1. Insert the ATI installation CD-ROM into your CD-ROM drive. If Windows runs the CD-ROM automatically, proceed to step 4. Click Start and select Run.
2. Type the following: D:\Win95\Disk1\Setup (If D is not your CD-ROM drive, substitute D with the correct drive letter).
3. Follow the Wizard's on-screen instructions to complete the installation.

## VGA Utilities

After you have restarted Windows, open the "Control Panel" and double click the "Display" icon.

You will notice three new entries have been made in the Display Properties Window: ATI Adjustment, ATI Panning and ATI Color.



## Setting

In the "Settings" window, you may select the desired resolution by changing "Display Area" pointer, desired color by changing the "Color Palette" value, desired font size by changing the "Font Size".

The ATI driver allows three simultaneous outputs to TV, CRT and LCD.

Click this icon if you wish to view the Notebook's display output on an external CRT only.

Click this icon if you wish to view the Notebook's display output on a television monitor.

**AST**

**USER'S GUIDE**

